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Air Conditioning & Refrigeration News

The Newspaper of the Industry

Trade Mark Registered U. S. Patent Office. Established 1926 as Electric Refrigeration News
Member Audit Bureau of Circulations. Member Associated Business Papers.

Written to Be Read on Arrival

VOL. 26, NO. 9, SERIAL NO. 519
ISSUED EVERY WEDNESDAY

Entered as second-class matter Aug. 1, 1927

DETROIT, MICHIGAN, MARCH 1, 1939

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FOUR DOLLARS PER YEAR
TWENTY CENTS PER COPY

Buyers Tend To Shop Near Home In Philadelphia

Trend Seen To 'Community' Shopping; Some Major Stores Try Branches

NEW YORK CITY—While housewives still show a slight preference for downtown stores, particularly in the more substantial items such as major appliances, the trend is definitely towards a greater concentration of shopping activity in community shopping centers, according to a survey made by Ross Federal Research Corp. for the magazine Sales Management.

The survey consisted of an analysis of the most recent purchases of 19 items made by 1,000 Philadelphia women (7,386 purchases were scrutinized), and reports on the general trend from other cities.

Of the purchases of mechanical refrigerators made by the 1,000 Philadelphia housewives, 57% were made in downtown stores, the study showed.

A more detailed analysis of the refrigerator purchases shows the specialty or independent store holding a slight edge in the downtown group, and the department stores doing slightly better in the community store group.

Of the 34 purchases of mechanical refrigerators made in the downtown district, 14 were from specialty stores, 10 from department stores,

(Concluded on Page 2, Column 1)

York's Conventions In Field This Year

YORK, Pa.—In contrast to last year, when one national sales meeting was held at the factory headquarters here, the national distributor organization of the York Ice Machinery Corp. is this year holding four separate meetings, covering the entire country, to outline 1939 sales programs and to review new developments and new products.

The four meetings, held in centrally located cities, will convene in New Orleans, March 3-4, for southern distributors; in San Francisco, March 11-12, for Pacific coast distributors; in Chicago, March 17-18, for mid-west distributors; and Atlantic City, March 24-25 for eastern distributors.

Individual meetings will be under the direction of the corporation's

(Concluded on Page 20, Column 5)

Chicago Group Winds Up Salesmen's Union Deal

CHICAGO — The eight-months' agreement signed last June between the Illinois Radio & Electrical Dealers' Association and the Retail Appliance & Furniture Salesmen's Union has been cancelled by the retailer group, it was announced last week.

The association-union agreement affected about 150 Chicago dealerships, and regulated wages, hours,

(Concluded on Page 2, Column 4)

New Kelvinator Branch In Buffalo Opened

BUFFALO—New offices and warehouse of Kelvinator's branch at 163-165 Georgia St. here were formally opened recently at a meeting attended by Detroit factory officials. Roland H. Davison, division manager, was in charge of the meeting, at which new refrigerator models were shown to dealers from western New York.

IN THIS ISSUE

Did you agree with the NEWS editorial—"What's Wrong with the Air-Conditioning Industry"? Turn to page 8 where Servel's Eastern manager gives his opinions on the weaknesses of engineering, price and merchandising in the air-conditioning business today.

* * *

More ways to shift into high-gear appliance selling: Scientific "spotting" of refrigerator displays boosts all appliance sales for department store—New homes, built to sell for $4,000, and equipped with all-electric kitchens, real tonic to Dallas appliance dealers—Garage converted by distributor into unique display room for Grand Rapids dealers creates "homey" atmosphere and makes demonstrations pay dividends—Modern Kitchen Bureau presents new ways to push roaster sales. All these different and profitable twists to specialty selling found on page 4.

* * *

Soda fountain installation and service men are warned against "obvious" mistakes in charging a system. In a continuation of the soda fountain series, Black and Seitz cover refrigerant charge, line sizes, and control settings for direct-expansion fountains. Page 12. Service data on capacitor motors, page 14.

* * *

The modernization of refrigeration equipment in a Milwaukee apartment hotel reduced operating costs and was the main factor in ending vacancies in the hotel. Page 7.

* * *

A $10,000 a week increase in business gained by a Los Angeles bakery is attributed to the installation of an air-conditioning system. How this huge increase in business was brought about through proper installation and dramatization of the cooling equipment is told on page 16.

* * *

More 1938 air-conditioning installation tabulations for chief population centers of the country. Pages 16 and 17.

Farnsworth Co. Will Take Over Grunow's Marion, Ind. Plant

NEW YORK CITY—Farnsworth Television & Radio Corp., manufacturer of radios, phonographs, and television equipment, has made arrangements to purchase the radio plant of General Household Utilities Co., at Marion, Ind.

According to the notice sent to General Household Utilities creditors by the Farnsworth company in compliance with the Indiana bulk sales law, title will be closed and the sale consummated on or after March 7, at the office of E. H. Rollins & Sons, Inc., 44 Wall St., New York City.

Under terms of the transaction, Farnsworth is to obtain the Marion plant and all property, real and per-

(Concluded on Page 2, Column 4)

Washer, Ironer Sales on Upgrade At End of '38

CHICAGO—Spurt in electric washer shipments during the last quarter of 1938, and an increase in ironer shipments during December, brought the year's total of home laundry appliance sales to a mark fourth best in the industry's history.

Tabulations indicate that the marked sales improvement during the last three months of the year raised the shipments total to 1,137,617 units in 1938, as against 1,642,019 in 1937, a drop of 30.7%.

At one time during 1938, through July, the industry shipments were off 43.87%, and at the end of September the percentage decline was 37.5%. In October there was

(Concluded on Page 6, Column 2)

2,300 Appliance Retailers Using EH&FA Financing

New 'Arrangements' Found Necessary To Carry Distressed Dealers

WASHINGTON, D. C.—More than 2,300 dealers and 260 utility companies are now using the financing facilities of the Electric Home and Farm Authority.

The EH & FA report to Congress reveals a 108% increase in the number of cooperating utilities at the end of the 1938 fiscal year. Amount of instalment paper handled by the Authority increased from $3,579,944.81 in 1937 to $6,028,376.66 in 1938. Electrical appliances and equipment of 175 manufacturers appeared on the EH & FA list as eligible for financing.

New policies were found necessary during the past year to help the customer and the dealer over the rough spots occasioned by the decline in industrial activity and the ensuing unemployment.

"Since it was felt that strong measures to enforce the payment of monthly instalments in some delinquent cases would only accentuate

(Concluded on Page 2, Column 2)

Bacteriologist Supports 'Germs on Dishes' Claim Of Dishwasher Firms

LANSING, Mich.—Advocates of electric dishwashers who have made claims that ordinary dishwashing methods used by the housewife leave dishes and silverware covered with germs have gained scientific support in the person of Dr. W. A. Mallman of the Michigan State College department of bacteriology, who declared that "about 85% of respiratory diseases can be traced to faulty dishwashing or handling."

Very few housewives, declares Dr. Mallman, take the trouble to wash dishes properly to prevent transmission of disease microbes. Immersion in boiling water is one of the steps necessary to rid the dishes of germs which most housewives neglect, he states.

Dr. Mallman believes housewives should take the responsibility of being more careful in their dishwashing, thus helping to avoid many common colds and respiratory diseases in the home.

Mrs. Powel Crosley, Jr. Dies At Florida Home

SARASOTA, Fla.—Mrs. Gwendolyn Crosley, wife of Powel Crosley, Jr., president of Crosley Corp., died Feb. 26 at the Crosley winter home here. She had been in ill health for some time.

Job Insurance Is For Salesmen Too, Colo. Court Rules

DENVER—In a decision handed down last week from Justice Otto Bock, of the State Supreme Court, Colorado becomes the first state to put commission salesmen under job insurance. The specific case involved an insurance worker, but the principle established applies to commission salesmen in the refrigerator, major appliance, and other fields. All members of the bench with one exception concurred in the ruling, reversing a finding of the District Court.

Bernard E. Teets, executive director of the Unemployment Compensation Division of the State Industrial Division, immediately estimated that the ruling placed 5,000 commission workers under the law, subjecting their employers to contributions to the funds.

Justice Bock's opinion was so phrased that it covers part-time, as well as full-time, commission salesmen. The justice declared that the commission form of payment did not essentially alter the worker's status. So far as the intent of the law went, an "agent" in this situation, was the same as an "employe."

"The purpose of the Unemployment Compensation Act," went on Justice Bock, "is to ensure a measure of security against the great hazard of unemployment in our economic life. That this hazard is real, and not theoretical, cannot now be questioned. Economic security has become almost synonymous with political security in our national economy."

Stokers Advertised as Appliances By Utility

KANSAS CITY, Mo.—Said to be the first presentation of automatic coal stokers as electrical appliances, 52 full-page advertisements will appear in local newspapers this year over the signature of the Kansas City Power & Light Co., as a part of the stoker merchandising campaign.

Another innovation in stoker merchandising is the financing of the campaign by coal producers of Kansas, Missouri, and Oklahoma, who for the first time have appropriated $15,000 for the promotion of the

(Concluded on Page 6, Column 5)

Airtemp Distributor For N. Y. Market Named

NEW YORK CITY — Marr & Futoran, Inc., has been appointed distributor in the metropolitan New York territory for Airtemp residential cooling equipment, oil-fired residential heating, and conversion oil burners.

Earl Marr, who heads the operation, formerly marketed another line of oil burner equipment through an extensive dealer organization cover-

(Concluded on Page 20, Column 4)

Texas U. Plans April Meeting On Air Cooling

Sessions Will Be Same Week As ASRE Food Technology Conference

AUSTIN, Tex.—Problems of practical interest to both engineer and dealer will highlight papers and discussions scheduled for the third annual conference on air conditioning at the University of Texas here April 14 and 15. First day of the conference runs concurrently with the Food Preservation Conference to be held at the university on April 13 and 14.

Such everyday problems as summer cooling requirements, case problems, and the installation, maintenance, and servicing of air-conditioning equipment will come up for consideration during the two-day air-conditioning meeting.

First day of the air-conditioning meeting includes talks on "Summer Comfort Cooling Requirements for the Southwest," by A. J. Rummel, air-conditioning engineer of San Antonio Public Service Co.; "Fan Selection and Use of Ducts," by J. R. Bishop, district manager of American Blower Corp., Dallas; and "Heat Chart Method for Determining Conditions in an Air-Conditioning System, also as an Aid for Selection of Equipment," by E. P. Renouf, southwest air-conditioning supervisor for Westinghouse.

Discussions led by H. E. Degler, Austin; G. R. Rhine, San Antonio, and O. W. Bynum, Dallas, will follow each of the papers.

Annual dinner will be held on the night of April 14, in conjunction with the Food Conference program. Speakers will include Peter Molyneaux, Dallas, editor of Texas Weekly, and David L. Fiske, national secretary of American Society of Refrigerating Engineers.

Program on April 15 appears to be highly practical, including discussions of "Case Problems in Air Conditioning," by Dale S. Cooper, Houston consulting engineer; "Installation, Maintenance, and Servicing of Air Conditioning Systems," by John

(Concluded on Page 20, Column 3)

ASHVE Meets July 4-6 At Mackinac Island

NEW YORK CITY — Mackinac Island, Mich., famed summer resort often called "The Bermuda of the North," will be the scene of the semi-annual meeting of the American Society of Heating & Ventilating Engineers to be held July 4 to 6. The Michigan chapter, of Detroit, and the Western Michigan Chapter, of Grand Rapids, will act as hosts.

William G. Boales of Detroit has been appointed general chairman of the meeting, which will be known as the Great Lakes Summer meeting. He will be assisted by Frank Feely of the Michigan chapter and Tom Brown of the Illinois chapter, Chicago, whose special functions will be to serve as hosts and activities chairmen on the boats sailing to Mackinac from Detroit, Buffalo, Cleveland, Chicago, and Milwaukee.

O. D. Marshall, of the Western Michigan chapter, will be chairman of activities at the island.

The boat cruise to the island is one of the features of the occasion, although Mackinac also may be reached by train and motor. Headquarters of the meeting will be the island's Grand Hotel.

Details of the program are yet to be announced, but the committee has promised ample entertainment in the form of such outdoors sports as golf, horseback riding, fishing, and boating.

Lawrence, Kansas Sales Drive Aims To Put Old Appliances on Public 'Junk Heap'

LAWRENCE, Kan.—It's "round-up" time in the territory of Kansas Electric Power Co. nowadays, as the company swings into its campaign to round up all "junk" electrical appliances and replace them with latest models.

To stir public interest in the drive, office windows of the company will be filled with the "junk" appliances taken in. A vacant lot in a prominent location also has been rented, where other outmoded appliances will be piled in a junk-heap and a big "For Sale" sign displayed.

Goal in the three-month drive is the sale of appliances and lighting units with a dollar value of at least $70,000, including 109 refrigerators, 88 electric ranges, 73 water heaters, 126 commercial lighting units, and 484 domestic lighting units.

Electric refrigerator section of the drive will be featured by a deferred payment plan, whereby only a small down payment need be made at the time of purchase, with regular monthly payments delayed until April.

"The Bar Junk Roundup," as the campaign is called, was inaugurated at a recent meeting staged in western setting, with company employes

(Concluded on Page 6, Column 3)

Neighborhood Store Trend Is Indicated By Recent Survey

(Concluded from Page 1, Column 1)
3 from mail-order houses, 1 direct-from-the-manufacturer, and 6 from various other sources.

Of 26 refrigerator purchases made in outlying district stores, 8 were made from a department store, 6 from a specialty store, 8 from mail-order houses, 1 direct from the manufacturer, and 3 were bought from various other sources.

On radios the survey showed that exactly 50% of the Philadelphia housewives interviewed had purchased their radios from a store in the outlying district. It also indicated that of the radios bought downtown, approximately 50% were purchased from department stores, but of those bought from community shopping centers, less than 25% were purchased in department stores, as compared with nearly 60% purchased in specialty shops.

Some of the reasons given for the general tendency to shop in community stores, as explained by Editor Philip Salisbury of Sales Management in his interpretation of the survey, are (1) a population drift to suburbs; (2) the inconvenience of having to travel downtown either by train, bus or automobile; (3) incomplete stocks in the downtown stores.

One woman, after trying a half-dozen big stores for crockery, draperies, and furniture, only to be told, "we can get this for you in about 10 days," threw up her hands in disgust and said, "these stores are just like a Sears, Roebuck catalog, only not nearly so interesting or convenient, because you can order from the catalog without leaving your living room."

Department stores have been trying to meet this trend in some large cities by establishing branches in the suburbs. Some of the early attempts along this line met with less than whole-hearted success because the mistake was made of installing incomplete stocks and only a few departments. This mistake is being rectified in more recent moves of this nature.

In Seattle one major department store has established branch stores, selling home appliances, in all of the neighborhood shopping centers of the city.

Thinking back of this is said to be that a wife nearly always wants the husband to check on a major purchase and this cannot be done during the hours maintained by a downtown store, nor is it easy to find a place to park. These branch stores are open nights by appointment.

EH&FA Report Shows Policy Was Altered For Slow Accounts

(Concluded from Page 1, Column 3)
the problem," states the report, "provision was made in instances that were meritorious for the extension of contract periods, which permitted the customer to defer several interim payments, and thereby enabled him to protect his equities in equipment which otherwise would have been lost through repossession.

"This policy of extending contracts has been applied to accommodate customers who meet with reverses beyond their control, such as illness, or death in the family.

"In some cases, a decline in sales and business reverses made it difficult for appliance dealers to assume immediate responsibility for defaulted contracts. To relieve the dealers from the added pressure of this obligation at such times, the Authority made special arrangements, where the facts justified such action, for carrying these accounts for dealers.

"This policy has permitted dealers to hold appliances surrendered by customers until satisfactory sales could be made before settling the obligation with the Authority. With the upturn in business activity and appliance sales, many dealers have been able to liquidate such obligations."

Losses from all causes amounted to $2,522.83 for the fiscal year, and were covered by the reserve set up for such contingencies.

EH & FA published in the report to Congress a list of appliances eligible for financing. They are:

Refrigerators, ranges, water heaters, water pumps, milk coolers, radios, cream separators, ironing machines, farm motors, washing machines, vacuum cleaners, portable heaters, dishwashers, waste disposal units, feed grinders, milking machines, and attic ventilating fans.

Effective Jan. 1, conversion oil burners and stokers were added to the list.

Examining Balsam-Wool in 12-year-old refrigerator

CHIEF WITNESS TELLS ALL . . .

There's no need to *guess* in selecting a refrigerator insulation that will continue to give top-notch performance through the years. Just call the chief witness—the one witness that is always reliable—Father Time! In thousands of homes from coast to coast, he has seen Balsam-Wool refrigerator insulation stand every practical test of use and come through with flying colors. Time's records show that Balsam-Wool stays dry as toast and clean as a hound's tooth inside the refrigerator wall . . . that it does not absorb moisture . . . that it continues to fill the space completely, without packing or disintegration. That's the kind of insulation which builds customer good will . . . that provides a firm foundation for your sales progress.

Successfully used in millions of refrigerators, Balsam-Wool provides sure insulation efficiency, whether used in hermetically sealed spaces or in the form of sealed slabs. Let us give you the whole story of Balsam-Wool . . . and why it is building sales for so many refrigerator manufacturers. Write today for details.

Wood Conversion Company, Refrigeration Sales Division

360 North Michigan Avenue, Chicago, Illinois
St. Paul, Minn. New York, N. Y.

BALSAM-WOOL
SEALED INSULATION SLABS
PRODUCT OF WEYERHAEUSER

Farnsworth Arranging To Buy Grunow Plant At Marion, Ind.

(Concluded from Page 1, Column 2)
sonal, located at or used in connection with the plant, including all materials and supplies, manufactured and semi-manufactured products, and inventory of goods or merchandise located on the real estate on Dec. 7, 1938, except such as may have been used by General Household Utilities in the usual course of business.

Farnsworth also acquires (if and to what extent desired) all patents, patent rights, and patent licenses belonging to General Household Utilities which it had or has the right to use in connection with the radio and phonograph business formerly conducted at Marion.

In payment for the plant and property, General Household Utilities is to receive from Farnsworth the sum of $270,000, payable by certified check, and that number of the shares of common stock of Farnsworth of the par value of $1 per share which shall be ascertained by dividing $150,000 by the price at which Farnsworth stock may be offered to the public by underwriters with whom that company may contract.

All of the $270,000 cash and part of the stock obtained from the sale to Farnsworth will be used by General Household Utilities to release the Marion property from all mortgages, tax liens, and other encumbrances.

General Household Utilities Co., manufacturer of Grunow radios and refrigerators, for some months had been reported as negotiating to dispose of the Marion radio plant, which was built originally to handle manufacture of the now-defunct International Radio Co., which was merged with General Household Utilities. The company has not been in active manufacture since October, 1937.

Creditors' committee of the company is now working on details of a proposed plan of reorganization, creditors have been informed. These, it is said, will include the securing of capital which will be made available to resume production of the new low-priced Grunow electric refrigerators, as well as a proposition to creditors on their past-due accounts.

Chicago Dealers Drop Contract With Union

(Concluded from Page 1, Column 1)
working conditions, etc. It was similar in most respects to the agreement in effect at present in Milwaukee, and had been modeled along lines of that pact.

Chicago merchants, however, found many salesmen disinclined to join or remain as members of the salesmen's union, an A. F. of L. affiliate, it is said. Cancellation of the pact was made by the dealer association under a clause permitting the pact to be terminated by notice 30 days before the date of expiration.

January Refrigerator Sales Up 22% In Rex Cole Area

NEW YORK CITY—January refrigerator sales by General Electric dealers in the territory of Rex Cole, Inc., distributor, topped comparable 1938 totals by 22.4%, reports to Cole headquarters indicate.

Nighswander Named Thor Divisional Sales Manager

TOLEDO — D. R. Nighswander, manager of the major appliance department of Lamson Brothers department store for the past three and a half years, last week resigned to accept a position as divisional sales manager of Hurley Machine Co., Thor laundry equipment manufacturer, with headquarters in St. Louis.

Oklahoma Tire & Supply Co. Named Leonard Dealer

WICHITA, Kan.—The Oklahoma Tire & Supply Co., operating three stores here, has been appointed dealer for Leonard refrigerators.

THE COLD CANVASS

By B. T. Umor

'Best Dressed'

MR. AND MRS. W. W. RHODES

* * *

If you want the McCoy on what the well dressed refrigeration man will wear, take another peek at the above picture.

It is none other than William Warren "Dusty" Rhodes, sales director for Kinetic Chemicals, he of the faultless attire, pictured in this "Laird of the Manor" pose with Mrs. Rhodes just after being named one of the nation's 21 "best dressed men."

He was so tagged at the convention of the National Association of Merchant Tailors, where he was cited for "his faultless hunting clothes; both his field and full dress suits, and for general excellence of wardrobe."

Also named as tailored standouts were two fashion plates from York, Pa. It isn't quite certain that they are York Ice Machinery Corp. smoothies, but it wouldn't surprise us if they were.

Pictorial proof that the niftily dressed Mr. Rhodes was up there batting with the style leaders was sent along by A. H. Holcombe of Victor Sales Corp., Philadelphia supply jobber, who wrote, "I don't know whether 'Dusty' will like the publicity but he certainly should get it from the official refrigeration paper."

* * *

Zeke's Line Has 'Em Dizzy

"Zeke Carrithers (left), advertising manager of the News, is rendered temporarily speechless by a fast one from Ray Hudson (right), Chicago advertising agency man who has numerous clients in the refrigeration supplies and parts field."

"But ex-U. S. Marine Zeke recovers his poise and shoots back an answer which makes Ray momentarily dizzy."

* * *

Frozen Corn on Cob

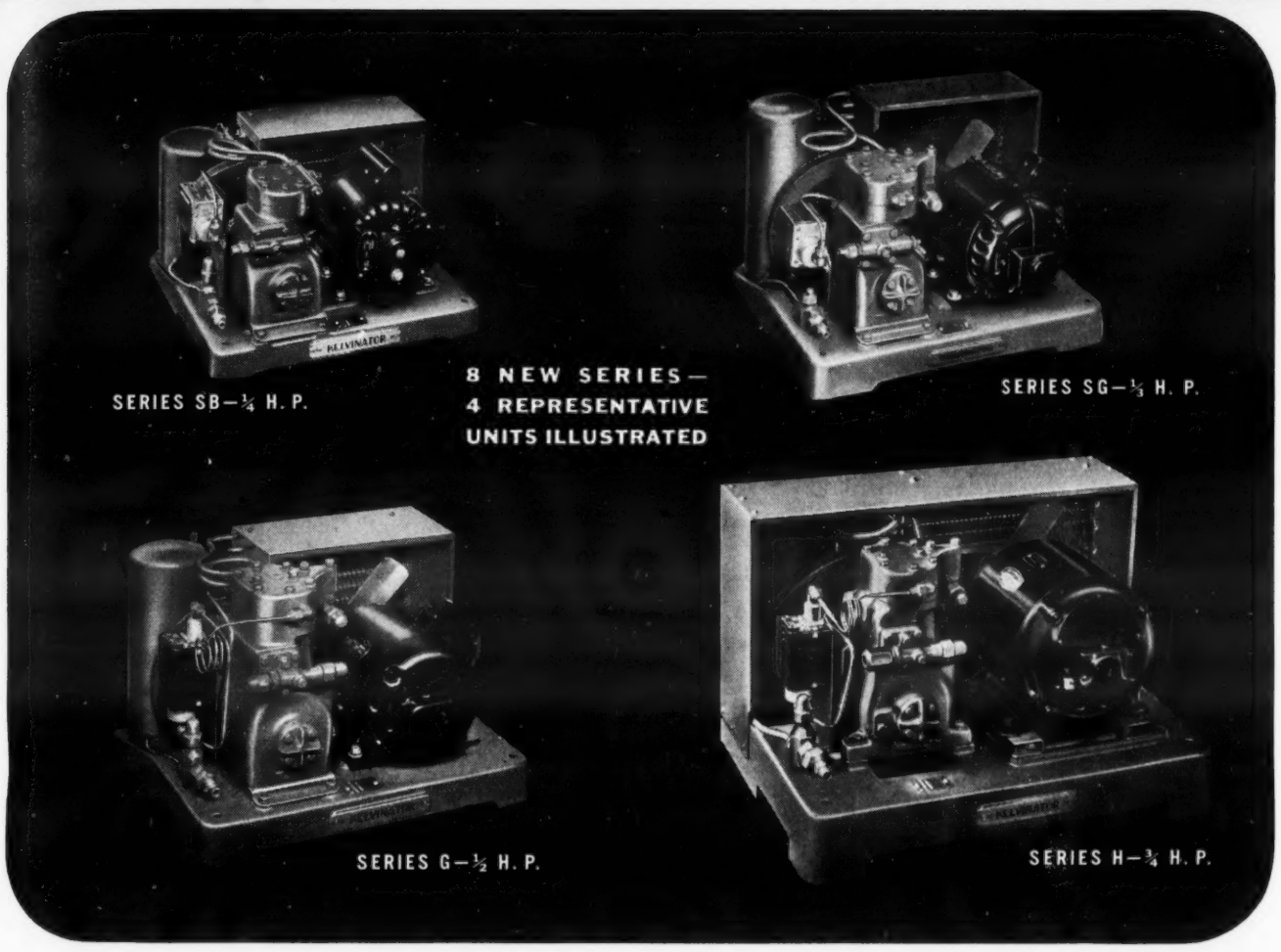
Anyone who feels we don't treat our unemployed well should come to Detroit. Corn-on-the-cob is being served to the unemployed this month by the Volunteers of America soup kitchen at 1432 First street.

The corn has been quick-frozen, of course, and kept in cold storage until now.

Some 15 sacks a day—enough to feed at least 200 men—is being offered to the unemployed who frequent the Volunteers of America kitchen.

LOWEST PRICES *Per Horse-Power* IN ALL KELVINATOR HISTORY!

—*The New Silver Jubilee Condensing Units*



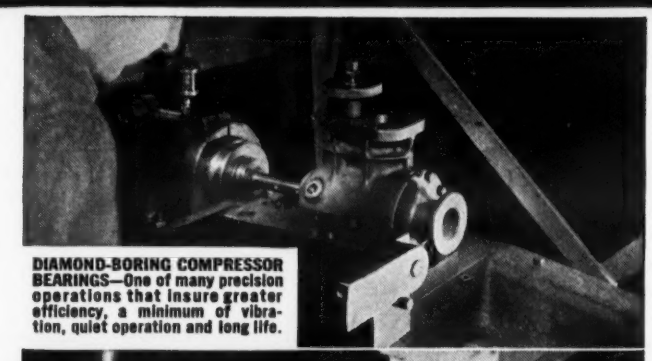
A NEW CONDENSING UNIT line that puts all previous units in the "dated" class, and scoops the field with its *new low prices* —that's Kelvinator's Silver Anniversary contribution to the refrigeration industry.

Timed to key in with Kelvinator's 25th Anniversary and "charged" with the design and production experience of those 25 years, the new Silver Jubilee Condensing Unit Line has already received a big hand. Small wonder, with lower prices for these units per horsepower than Kelvinator has ever offered before!

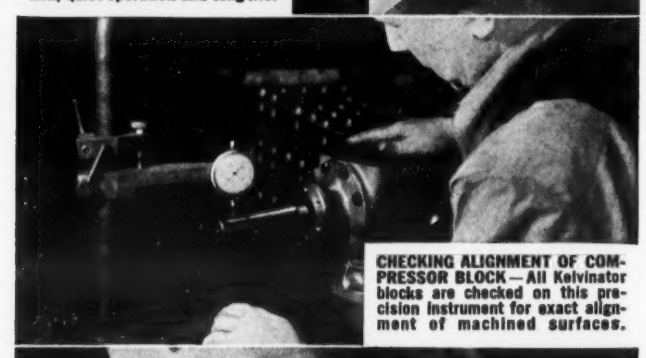
This line sells itself to your customers, even before they know how low the prices really are. And *your* profits will climb correspondingly. For here's a cold-making unit that's too "hot" *not* to handle. *Performance* against *price* is what counts, and now Kelvinator gives you a yes both ways.

New money-saving features. Greater ease of service and installation. Balanced design. Just the right size of motor, block and condenser. And priced for more sales to both new and replacement markets.

At the right you'll see some of the precision operations and tests which mean better performance in these new units. Then, for further facts and figures, let's have the coupon.

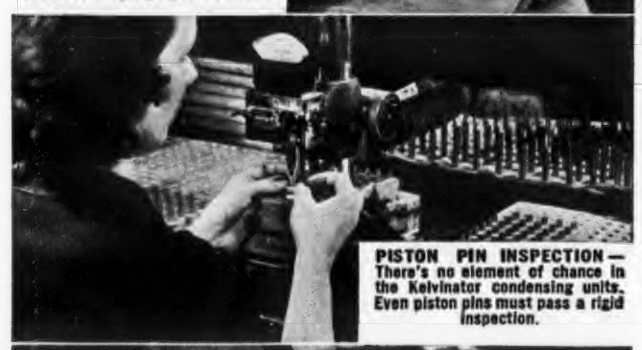


DIAMOND-BORING COMPRESSOR BEARINGS—One of many precision operations that insure greater efficiency, a minimum of vibration, quiet operation and long life.



CHECKING ALIGNMENT OF COMPRESSOR BLOCK—All Kelvinator blocks are checked on this precision instrument for exact alignment of machined surfaces.

MICRO-GRAPH INSPECTION OF SEAL FACES—Seal faces are checked for porosity, metal segregation and smoothness by this powerful magnifying instrument.



PISTON PIN INSPECTION—There's no element of chance in the Kelvinator condensing units. Even piston pins must pass a rigid inspection.

SELECTIVE ASSEMBLY—All pistons are inspected for precision and then are SELECTIVELY FITTED to the cylinders to assure most efficient compression.

PULLEY BALANCING—Each motor and compressor pulley is carefully balanced to insure increased efficiency and a minimum of vibration.

KELVINATOR 1914 1939 SILVER ANNIVERSARY

Kelvinator

COMMERCIAL REFRIGERATION

KELVINATOR, Division of Nash-Kelvinator Corporation, Dept. K-38, 14250 Plymouth Road, Detroit, Mich.

Gentlemen:
I'd like to have more information about Kelvinator's Silver Jubilee Condensing Units.

*Firm Name*_____

*Address*_____

*City*_____ *State*_____

Specialty Selling Methods

St. Louis Store Experiments With 'Spot' Displays of Appliances; Men's Section Best

ST. LOUIS—Scientific "spotting" or refrigerator displays can do much not only to boost sales of that appliance, but also to increase the volume of the entire appliance department, the Scruggs-Vandervoort-Barney department store has found.

Not content with merely placing a group of the new refrigerator models near the store's main entrance, store officials decided to conduct a careful survey to determine just where the greatest concentrations of floor traffic occurred.

This survey covered all seven floors of the building, each floor being marked off into 60-foot squares. Then on three separate days of one week, the management checked closely the number of people entering each of these squares.

Results of this survey showed that the men's furnishings department was most often visited, with the notions department second in popularity, and that an elliptical area centering on the main aisle of each floor covered most of the heavy-traffic centers.

Consequently displays of refrigerators, and of smaller appliances, too, were placed in the most congested areas. Special attention-getters were the radio-equipped refrigerator models placed in the centers of the main aisles.

People attracted by the novelty of hearing radio programs broadcast from a refrigerator were far easier to approach, it was found, than those who might wander into the appliance department. Names and addresses of prospects were taken, and in this way the outside salesmen were furnished with numerous "hot" leads.

Dallas Homes With All-Electric Kitchens Sell For Less Than $4,000 & Give Appliances a Boost

DALLAS, Tex.—Household electrical equipment of General Electric Co. is receiving a real boost hereabouts thanks to the modern low-cost housing projects being carried on by Hickey & Co. and Flippen-Prather Realty Co. Both of these developments feature G-E equipment throughout, from mercury switches to electric sinks.

Hickey & Co. is offering 100 homes, including lots, at the surprisingly low price of $3,985 each. Located in Parkdale, an east-side subdivision, these five-room houses are equipped with G-E attic ventilation, silent mercury switches, circuit breakers, and electric sinks, including dishwashers and disposal units. Construction features include concrete foundations, brick-veneer finish, tile baths, copper plumbing, and hardwood floors.

ALL SIX SOLD

These homes are sold on FHA terms for as little as 10% down and $28 per month. On the day that the first six houses of the development were thrown open, all six were sold.

A. J. Brock, of General Electric's home bureau, first interested Mr. L. W. Hickey, builder of the homes, in G-E equipment. J. A. Coffey, kitchen specialist for Electric Appliances, Inc., local G-E outlet, secured the order for the necessary electrical equipment for the 100 homes.

Flippen-Prather Co., which is building several homes in the $7,000-and-up class, is equipping all of these homes with G-E refrigerators, ranges, electric sinks, unit kitchen cabinets, mixers, fans, mercury switches, circuit breakers, and attic ventilators.

Opening day brought 3,600 persons to inspect the first Flippen-Prather home. Electric Appliances, Inc. had several salesmen on hand to explain operation of the G-E equipment to interested parties. This policy resulted in opening-day sale of seven refrigerators, two ranges, one attic ventilator. In addition, orders were received for 12 kitchen layouts for individuals planning to build their own homes.

Mr. Coffey, longtime G-E appliance salesman who has for a number of years tried sporadically to promote the all-electric kitchen idea, also was instrumental in making the deal with the Flippen-Prather Co. Starting off early this year to contact builders, contractors, and realtors in regard to some form of all-electric home development, he finally sold the idea to Hugh E. Prather, vice president and general manager of the Flippen-Prather organization.

Al Brock, of G-E's home bureau, was called into the deal so that no detail would be overlooked. Plans were made in collaboration with G. Mallory Collins, the architect, who accepted many of Mr. Coffey's ideas, which then were sent to Victor Civkin at the General Electric's home bureau in New York City to be checked and rechecked.

UTILITY BACKING

Both housing developments were backed to the hilt by Dallas Power & Light Co. which devoted one issue of its publication, Dallas Hospitality, to each project. The utility also promoted the projects with newspaper, radio, and billboard advertising. It was the first time that the power company had tied in with any such program sponsored by an individual manufacturer.

Reasons for this unprecedented co-operation, explained C. A. Tatum, Jr., sales manager, was that this was the first time that any organization had produced for the utility a program in which all angles had been so completely worked out and with which actual results had been achieved.

Variety of Methods In Bureau's Program For Roaster Campaign

NEW YORK CITY—Selling plans that appliance dealers can use as springboards in boosting their electric roaster sales averages are suggested by Modern Kitchen Bureau in its plan book announcing the 1939 national cooperative roaster campaign.

First plan suggested is of strictly "use the user" variety. The dealer distributes prospects' cards to electric roaster owners, and arranges with them to give demonstrations to their friends. When the demonstration has been completed, the owner fills in the friend's name and address on the cards, and returns them to the dealer.

If ultimate sales result, the electric roaster owner who gave the demonstration and furnished the lead is given either a nominal cash award, or is given a credit toward his electric roaster payment.

Free "home trial" is the basis of the second selling plan, with the prospect being permitted to use the roaster a week at home without cost or obligation. When prospects for this plan are chosen with care and judgment, dealers get as high as 70% sales, the Bureau claims.

Electric roasters returned unsold can be put back into first-class condition simply by using several inexpensive new parts, such as inset pan and lid. Slight cost of reconditioning, or the alternative slight reduction in selling price, may be more than made up in extra sales.

Third sales idea embodies the "roaster club plan" for group selling of the appliance. Under this arrangement, the dealer sets up roaster clubs through local women's clubs, church groups, women's auxiliaries, etc. Each member of the club pays in a fixed amount of money each week for a given period.

Each week a name is drawn, and that club member gets her roaster immediately, although she continues paying for it through the club. This procedure is followed until every member of the club has received a roaster, at which time payments cease and the club terminates.

Consumer offers comprise the fourth plan, and may include a roaster unit complete with dishes, broiler unit, and stand; roaster ensemble and automatic timer clock; roaster complete with dishes and the "fixin's" for a ham and bean dinner; or a free turkey at Christmas or Thanksgiving.

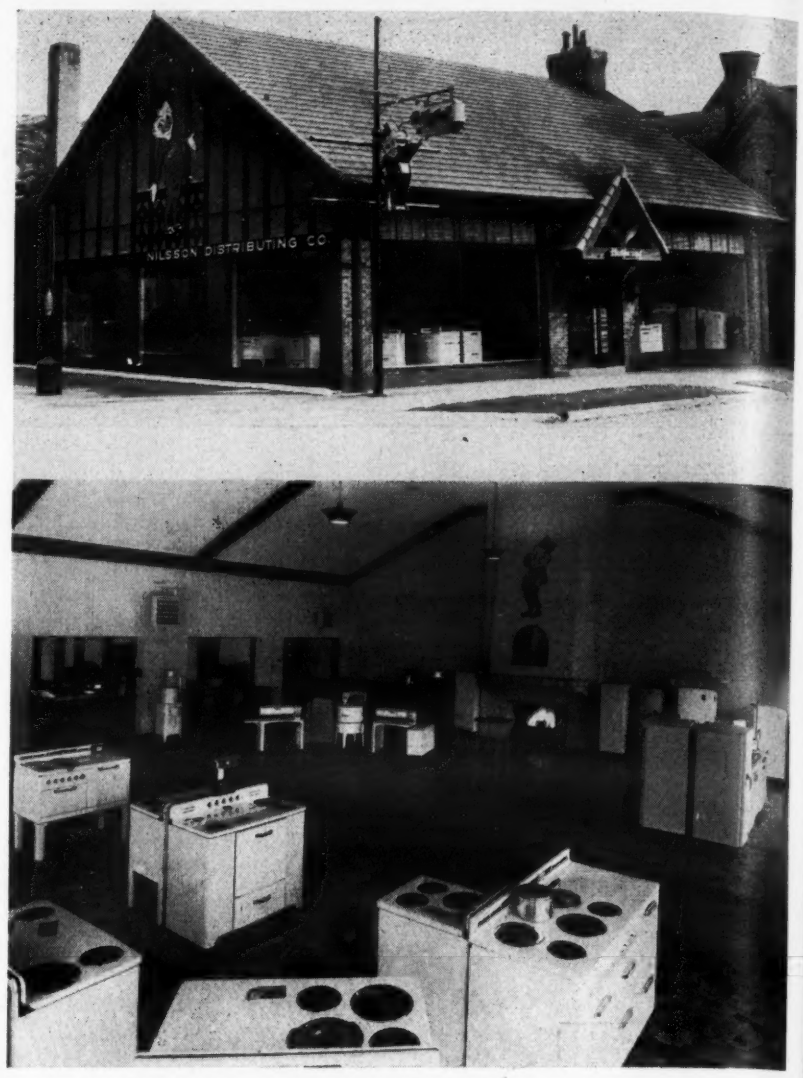
Utility Employe Leads Net 770 Sales In Month

NEWARK, N. J.—A total of 770 sales of electrical and gas appliances resulted from the 2,595 leads turned in during January by load-building employes of Public Service Electric & Gas Co. who are not regularly engaged in sales work.

Sales of electrical appliances were divided as follows: 77 refrigerators, 82 washers, 13 ironers, 62 vacuum cleaners, and 289 other appliances.

A breakdown of gas appliance sales showed this record: 27 refrigerators, 102 ranges, 61 automatic water heaters, 5 space heaters, 51 building heating appliances, and one other unit.

Distributor's Store Creates a 'Homey' Atmosphere



Departing from the typical wholesale appliance setup, the Nilsson Distributing Co. of Grand Rapids, Mich. took over a former automobile retail display room and service garage, outside the commercial district, but easily accessible from all parts of the city. Main display room is about 40 x 40 feet, with a high ceiling of rustic design. Walls are finished in pale green, and the floor is of varicolored tile. The attractive home-like atmosphere is promoted by a fire place at one end of the display room. At night the interior and the model all-electric kitchen are flood-lighted so as to be visible from the street. A Hotpoint Redman, about 12-feet high, mounted in the gable, beckons passersby to inspect the display.

* * *

Nilsson Turns Converted Garage Into an Ultra-Modern Showroom For Dealers' Use

GRAND RAPIDS, Mich.—Planned, located, and laid out for maximum service to and use by local dealers is the new headquarters of Nilsson Distributing Co., Hotpoint distributor here.

Departing from the typical wholesale appliance set-up which characterized its former location, new headquarters of the distributorship are located in what used to be an automobile retail display room and service garage. Located away from the commercial and manufacturing districts, where dirt and soot are a problem, the building affords cleaner, more effective display facilities, and at the same time is convenient for dealer sales and demonstration use.

Featuring the new display room is a complete electric kitchen, including sink and dishwasher with waste exit, range, and refrigerator. All this equipment is plumbed in and connected, and dealers are urged to bring in groups of prospects for electric kitchen demonstrations.

Main display room is about 40 x 40 feet square, with a high ceiling of rustic design. Walls are finished in pale green, and the floor is of varicolored tile. Large display of ranges is kept on the floor at all times, so that, after kitchen demonstrations, dealers can show their prospects all available models, while desire for ownership is uppermost.

Home-like atmosphere of the display room is promoted by a fireplace at one end, over which is mounted a 6-foot Hotpoint "redman." Since the building has windows on three sides, little artificial lighting is required during the day. At night, display room interior and kitchen are flood-lighted, so as to be visible from the street.

Two Hotpoint "redmen" call further attention to the Nilsson headquarters from passers-by. One is in neon, and the other, 12 feet high, beckons from his perch in the gable of the building.

Commonwealth Edison of Chicago Offers Appliances 'On Trial' To Its Employes

CHICAGO—Sixty days' free trial of an electric range or an electric water heater, or both of these appliances, is being offered to employes of Commonwealth Edison Co., Chicago utility, under a new policy recently instituted by this company.

The appliances will be installed without charge, except when wiring costs exceed the company's established allowance. Any employe taking advantage of the offer may purchase either the range or the water heater, or both, at any time during the trial period, and may pay on a monthly instalment plan. Trade-in allowances will be offered for old ranges or water heaters replaced by the new units.

If the employe decides not to keep the appliance on trial, the company will remove it without charge, leaving the additional wiring in the building.

MEET DOC ICE-X
He's a Specialist!

● This is DOC ICE-X, Ansul's new specialist in eliminating *ice* from expansion valves and capillary tubes. Doc gets there *quick!* And in machines charged with methyl chloride, methylene chloride, or any of the "Freon" refrigerants Doc provides *immediate* relief. Prevent any "ice illness" in your family . . . call on DOC ICE-X *now!*

● *ANSUL ICE-X dissolves ice and prevents ice formation. Non-corrosive, it contains no methyl or ethyl alcohol, no alkali, acid or other corrosives. It leaves no residue, does not react with refrigerants or oils. It may be used with acrolein methyl chloride.*

● Ansul ICE-X is machine-tested, easy to use, free of any hazard to life or health.

ANSUL CHEMICAL COMPANY
MARINETTE WISCONSIN CA-3-9

ANSUL ICE-X

THE ANSUL JOBBER NEAR YOU CAN SUPPLY YOU WITH ICE-X

MASTERCRAFT
ADJUSTABLE PAD AND CARRYING HARNESS

The most efficient and economical equipment made for handling refrigerators safely and without scratching or marring. Pad is separate from harness and both adjustable to all styles and sizes of cabinets. Efficient, sturdy, easily and quickly applied.

Adjustable Pad, $8.30 each

Adjustable Harness, $6.00 each

Name of refrigerator attractively lettered on pad at 50¢ extra.

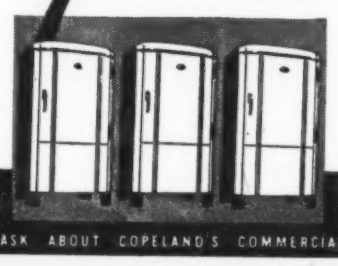
f.o.b. Chicago.

Write for folder and prices on pads for refrigerators, washers, ironers, ranges, radios, etc.

Pat. Appl'd for

BEARSE MANUFACTURING CO.
3815-3825 Cortland Street, Chicago, Illinois
Incorporated 1921

You'll sell more Copelands



Because they're built right—super-featured for quick sale, super-powered for performance.
Because they're priced right—giving you the great advantage of low cost, low down payment, easier terms.

Write TODAY for facts

Copeland Refrigeration Corporation
Sidney, Ohio

ASK ABOUT COPELAND'S COMMERCIAL REFRIGERATION AND COPELAND WATER COOLERS

Every house needs **Westinghouse**

A PACEMAKER in Eye Appeal! A SALES MAKER in "Buy Appeal"!

IT'S THE PACEMAKER FOR '39

BETTER FOOD PROTECTION

•

KITCHEN-PROVED CONVENIENCE

•

LONG, LOW-COST OPERATION

It's got Everything to SELL... and Everything to SELL WITH!

1939 prospects are looking for STYLE—and finding it in Westinghouse. They also want to know what's INSIDE as well as OUTSIDE—and the 1939 Westinghouse Refrigerator has what it takes to sell them. It makes available a point-by-point presentation that answers every question. The 1939 Plus-Value Visualizer practically takes the 1939 Westinghouse apart for exacting buyers. It shows the *why* and *how* of Meat-Keeper, Humidrawer, exclusive True-Temp Control, Economizer mechanism, and all the other 1939 Westinghouse advantages.

FAST CLOSING IS EASY with the New SELLING BOOK!

Gives a complete to-the-point sales story in big pictures and fast-moving copy that makes it easy to get over the PROOF of *better food protection . . . Kitchen-proved convenience . . . and long, low-cost operation! If you don't already carry the Westinghouse line, it will pay you to investigate the attractive 1939 dealer franchise. Call your nearest Westinghouse distributor or write direct to Westinghouse Electric & Manufacturing Company, Mansfield, Ohio.*

NEW PLUS-VALUE VISUALIZER tells the "Inside Story"...

The year's outstanding showroom demonstration piece! It actually lets your prospects see into the new 1939 Westinghouse Refrigerator . . . feature by feature, by means of a new ingenious series of Cellophane overlay pictures that dramatically emphasize ALL the "plus values" Westinghouse has to offer!

Westinghouse Refrigerator

"The Line of Least Resistance"

Major Appliances

Bigger Oven Capacity, More Flexible Cooking Units Distinguish Frigidaire '39 Ranges

DAYTON, Ohio—Five household models with increased oven capacity and five-heat surface units for greater cooking flexibility, plus a number of other design and operating improvements, are in Frigidaire's electric range series for 1939.

Following the trend toward full base models, the 1939 line has only one model with legs, a change from last year's fairly equal division between leg and base models. Included in the series with bases is the B-20, a low-priced feature model.

In addition to the five-model basic line, a small-base model also is available for apartment house installation.

Zone 2 retail prices on the line, including one-year warranty and installation charge, exclusive of special wiring and range cord, are:

Model	Price
B-60	$199.75
B-40	179.75
B-30	159.75
B-20	139.50
L-10	119.50
A-5 (Apartment)	99.50

Major change in the oven consists of a boost in the capacity of the broiler unit from 2,000 to 2,700 watts, increasing the speed of broiling and decreasing time required to preheat the oven. Contributing to greater economy and to greater broiling speed is the use of a specially designed heat reflector installed immediately above the broiler unit, directing more heat rays downward to the food.

Greater flexibility in the use of cooking units is afforded by the adoption this year of five cooking speeds, as against last year's standard of three on all units, the additions being one speed between the previous high and medium, and a simmer speed added below the previous low.

Revision of the distribution of various heats across the surface of the heating rings with the new five-heat design is said to allow for greater flexibility in the use of the various sized cooking utensils, and greater convenience with different types of cooking.

A time switch, called the "Thriftomatic" switch, controls the "Thermizer," the sunken-well cooker, to provide for automatic shifting from a new high to low at the end of any period of time from one to 30 minutes, depending on requirements. This arrangement is designed both for economy and convenience.

Additional heating speeds, together with the time switch, are said to permit the "Thermizer" to perform many of the smaller tasks of the oven with a variety of foods, affording a saving of electric current. An aluminum pudding pan and a nickel-plated wire baking rack have been added to the well-cooker's standard equipment, increasing its potential uses.

Design on both broiler pan and grid also has been changed. The pan has been re-shaped and reinforced, while the grid has been changed to provide openings at the end so that it may be removed more easily, and spacing of the wires has been increased to permit easier cleaning.

All additional hardware has been given a new design of white Plaskon throughout the line, instead of the black and gray and white as in the past. Handles in particular are shaped to have smooth, easily cleanable surfaces.

New master time control clock, with "on" and "off" dials mounted on its face, is designed to simplify the task of setting controls for later operations of the oven.

Height of the work light has been changed on the larger models, and a reflector has been added to permit a broader spread of light over the range top, to light the bottom of utensils but eliminate glare to the housewife's eyes.

Designed alone lines identical with higher priced models, the new B-20 feature unit, designed to appeal to purchasers in the lower income brackets, has a full-size oven with twin units and high-speed broiler, one-piece porcelain chassis, one-piece cooking top, five-heat switches on all surface units, double-duty well-cooker with automatic time switch, full base design, and utensil storage drawer.

Spaid Heads Hotpoint Refrigerator Promotion

CHARLES D. SPAID

* * *

CHICAGO—Charles D. Spaid has joined the advertising department of Edison General Electric Appliance Co., Inc., manufacturer of Hotpoint appliances, and has been placed in charge of all advertising and sales promotion for the Hotpoint line of refrigerators.

Mr. Spaid has been engaged in promotional and advertising work within the electrical appliance industry since 1926. Until 1932 he specialized in advertising and sales promotion campaigns for the incandescent lamp department of General Electric Co.

In 1933 he joined the sales promotion department of G-E Supply Corp., and later he became engaged in similar work for RCA-Victor Corp. Following this connection, he rejoined General Electric Co., this time at Nela Park, Cleveland, where he was employed in the campaign division of the company's appliance and merchandising department. He continued in this capacity until he went with Hotpoint.

Lawrence, Kan. Dealers Start a 'Roundup'

(Concluded from Page 1, Column 4)

dressed in ranch hand costumes reminiscent of earlier bronco-busting days. Cash prizes and other awards are being offered to sales leaders during the campaign period.

W. Fred Jordan, commercial and new business manager, is directing the drive. Lloyd S. Purcell, secretary-treasurer, has arranged for special financing of appliance sales. Every sale will come under the utility's "red dot plan," so that accurate records of the appliances sold during the campaign can be traced, and a check kept on the ultimate outcome of financing, delinquencies, and repossessions.

R. Cooper Jr. Equipping Chicago Apartment

CHICAGO — All tenants of the Chatelaine Tower apartments will eventually enjoy the advantages of electric cooking, if present plans of the building's owners materialize. Some apartments already have been equipped with electric ranges, and it is expected that 65 of the units will be in use by next summer. Others will be installed as leases expire.

The ranges were sold by R. Cooper Jr. Inc., General Electric distributor.

'Power Cooking' Claimed For Norge Ranges Through New Five-Heat Surface Units

DETROIT—"Power cooking" is claimed for the new line of Norge electric ranges through the five-speed cooking plates with which all models are equipped. Included in the line is a "special" model in the $100 price class, with four enclosed cooking elements.

Flat-covered coils in the new "Electro-Speed" plates are said to give direct contact heat, assuring more positive and efficient heat transfer to cooking utensils. Also, it is claimed, units may be turned low enough to keep food already cooked at right temperatures for serving, while at the other end they provide fast cooking when desired.

Oven heat control makes it possible to maintain any desired baking temperature, and oven wattage has been stepped up, reducing preheating time. Heavy insulation on all sides is said to assure comfortable kitchen temperatures.

Broiler unit of the drawer type is said to provide an even distribution of heat over the entire broiler surface. In most models, it is equipped with a smokeless grille which is claimed to reduce the mount of cleaning necessary after a broiled meal has been prepared.

Utensil drawer is equipped with an automatic stop. A warming compartment in some models affords space for preheating dishes, or storage space for cooking utensils.

Automatic time and temperature control are among the convenience features of deluxe range models.

Both starting and stopping time can be regulated. By means of a time selector switch, this same automatic timing may be switched from the oven to the cooking well for automatically-timed cereals or boiled dinners, or to the convenience outlet for timing electric roasters, casseroles, or chafing dishes.

The ranges are finished in white porcelain enamel with recessed bases, providing ample toe room. Hardware is chrome trimmed. Control panel is placed on the back rail in deluxe models, and oven doors are of equal size. Arched and beveled back rail is set off by the chrome lamp and condiment set.

On two models, a well cooker in place of the left rear element comes as standard equipment. It can also be had on other models as special equipment. Backs on most models fit flush with the wall, to facilitate cleaning as well as adding to appearance.

Width of the seven models in the line varies from 21 to 40 inches, and height is standard at 36 inches. Standard oven dimensions are 14½ x 16 x 20 inches. A drop-front broiler is used on all save two models, where it is in the oven.

Oven units have a wattage of 4,000 except in the two smaller models, which have 2,800 and 3,000, respectively. Surface units are arranged with two 1,200-watt plates, one of 2,000 and one of 1,000, to give cooking flexibility. All models are equipped with a convenience outlet, and one model has two. Oven heat control is used on all models.

Sales of 360,000 Electric Ranges, 21% Increase, Predicted For 1939 By Reese Mills

MANSFIELD, Ohio — Sales of 360,000 electric ranges during the next 12 months, an increase of approximately 21% over 1938, are forecast by Reese Mills, manager of the range and water heater department of Westinghouse Electric & Mfg. Co.

"The trend is definitely toward the simplicity and convenience of electric cooking," Mr. Mills said. "In a nation-wide canvassing of opinion, 52% of the women interviewed thought electric cooking superior to other types of cooking. More than 33% said their next range would be electric.

"During the past five years, the gap in sales between electric ranges and other types has steadily been narrowed. According to statistics, in 1933, 15 gas ranges were sold for every electric range; in 1934, the ratio was cut to 10 to 1; in 1935, 7 to 1; in 1936, 5 to 1; in 1937, 4 to 1; and in 1938, based on the first six months' report, 3½ to 1.

"We do not consider 1938 to have been a normal year, and consequently we may expect this ratio to be reduced still further in 1939. Electric range sales fell off in 1938; they dropped about 36%. But other type range sales for the same period declined approximately 43%.

"The long-range picture of the industry is definitely a favorable one. Running true to form with most conveniences, which require about 20 years of promotion to attain the first million users, the electric range industry moved slowly ahead from 1914 to 1933 before it reached this level, with about 1,170,000 units in use. But in the next five years alone it sold more than 1,200,000 electric ranges—a combined sales record for the 24 years of approximately 2,415,450 ranges. And the best part of the story is that this figure represents only 10% of the potential market.

"But statistics do not tell the complete story. After all, the future of this industry rests with the homemaker. Answers to a recent survey shows that 67% are convinced that the electric range cooks faster than any other method; 60% said cooking cost with an electric range is actually less than by other methods; 32% said the saving in food preparation costs exceeds the extra cost of the range. Only 8% said the cost of electric cooking is slightly higher than other methods.

"The research engineer has seen to it that the cost of electric cooking has decreased steadily. In 1916, the estimated consumption of electricity for the average electric range was 1,800 kilowatt hours per year. In 1938 it had dropped to 1,200 kilowatt hours."

Kansas City Utility Gets Behind Stoker Sales

(Concluded from Page 1, Column 4)

coal burning equipment, rather than coal itself.

Stokers to be advertised by the local utility under this campaign include the Link-Belt, Combustioneer, Stokol, Delco, Butler, Winkler, and possibly one or two more. All stokers sold in this market will be financed through the instalment plan of the Kansas City Power & Light Co.

The first advertisement coincides with the opening of the annual Better Homes Show, in which all of the leading stokers are said to be represented. The slogan will be, "Only 15 cents a day over the heating season."

The plan was devised by the Bituminous Coal Utilization Committee for Kansas, Missouri, and Oklahoma. Murrell Crump, advertising manager of the Sinclair Coal Co., Kansas City, is chairman of the advertising committee. Other members are Carl Lawson, vice president, Potts-Turnbull Co., and J. G. Galvin, president, Galvin Advertising Co.

Miami Distributor To Handle L & H Line

MIAMI, Fla.—Major Appliances, Inc., with headquarters here and with branches in Tampa and Jacksonville, has been appointed distributor in these latter two territories for the L & H line of electric ranges and hot water heaters manufactured by A. J. Lindemann & Hoverson Co., Milwaukee.

The Major Appliances organization has handled state-wide distribution of L & H gas appliances for the past two years. W. D. Rowlands is president and general manager.

Washer & Ironer Sales Show an Upturn

(Concluded from Page 1, Column 2)

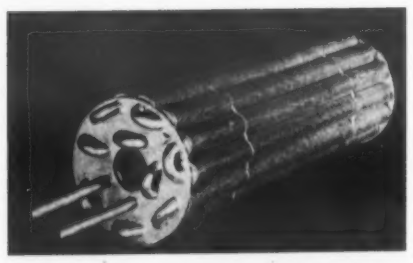
practically no decrease from the same month of 1937, and the first gain came in November, when shipments were up 12%.

December shipments of washers totaled 67,502, an increase of 20.9% over the 55,843 units of the same month of 1937.

Ironer shipments also showed an increase in December, totaling 9,210 as against 9,180 in the same month of the previous year. During 1938 ironer shipments amounted to 110,540, a decline of 37% from 1937.

Washers retailing at $70 or more made up 36% of the 1938 total, compared with 42% in 1937. Washers in the $50 or more price bracket were 78% of the industry's total in 1938, as against 81% in 1937.

No Joints! No Leaks!



This Rome Jointless Water Cooled Condenser is a typical example of Rome's ability to provide trouble free condensing equipment. Rome Water Cooled Condensers are used by many leading compressor manufacturers. Write for complete information and quotations.

ROME-TURNEY RADIATOR COMPANY
222 Canal Street
ROME, N. Y.

Use

BUSH UNIT COOLERS
TO ASSURE A GOOD HUMIDITY CONTROL

PLENTY OF TUBE AND FIN SURFACE PLUS LOW AIR SPEED ELIMINATE EXCESSIVE DEHYDRATION AND ASSURE AN EFFICIENT, ECONOMICAL OPERATION.

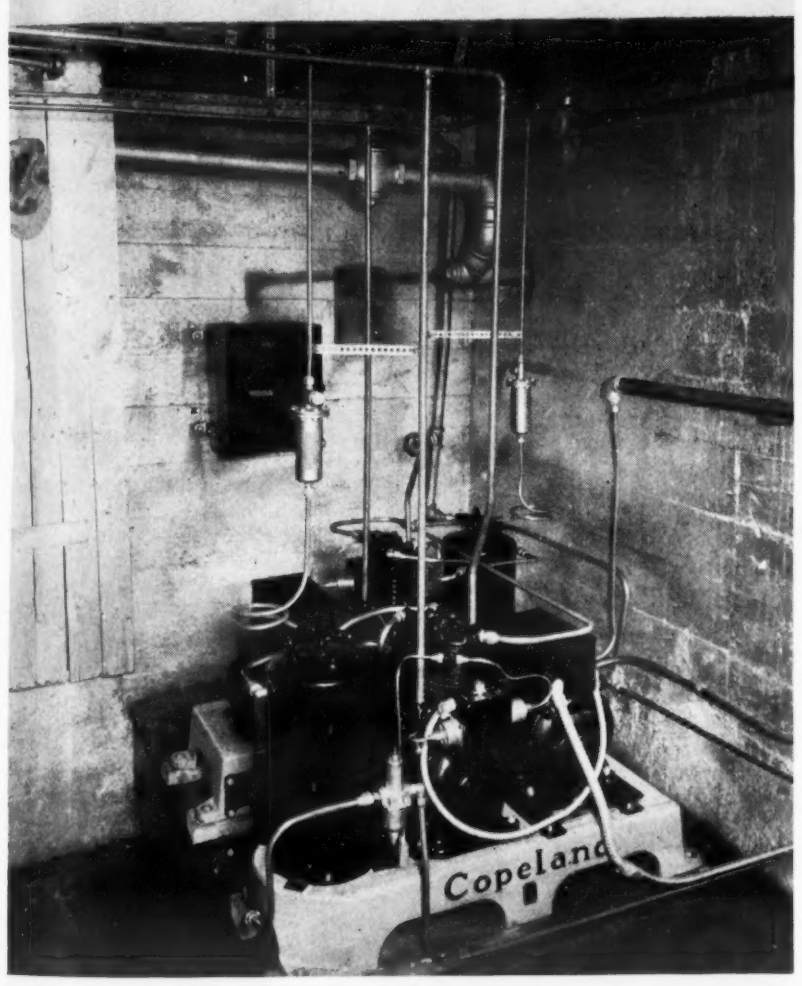
THE BUSH MANUFACTURING COMPANY
BRANCH FACTORY 610 N. OAKLEY BLVD. CHICAGO
HARTFORD CONN.
EXPORT DEPT. 100 VARICK ST. NEW YORK, N.Y. CABLE - ARLAB, N. Y.

Condensing units that are superior in capacity and performance. Sizes from ⅛ to 15 h.p.

Universal Cooler Corp., Detroit

Commercial Refrigeration

Modernization of Old System In Apartment Hotel Reduces Operating Costs & Ends Vacancies



(Top) Lynette Nelson opens the door of one of the special Midwest cabinets that were part of the modernization program for the Colonial hotel in Milwaukee. (Bottom) One of the Copeland ¾-hp. condensing units that supplied the refrigeration for this job. Note how the tubing is braced and carried, and how the Henry dehydrators are installed.

* * *

MILWAUKEE — Demonstration of the value of modernizing refrigeration equipment in an apartment hotel has been made in the case of the Colonial hotel in this city, which recently replaced an old CO_2 system with modern equipment installed by Commercial Cooling Co., Ripon, Wis.

The hotel, located at 826 N. Cass St. and managed by the E. H. Spencer Co., has 75 apartments which were originally equipped with small ice boxes and a circulating brine type system, making use of iron pipe coils throughout.

According to the building management, the saving on electric current alone through installation of the new system has been more than $100 per month, and the new refrigerators are given credit with having kept the building free from vacancies.

The old system was served by two 10-hp. carbon dioxide compressors, each compressor handling one wing of the building. Large, space-occupying brine tanks were each connected with 3-hp. brine pumps. This original equipment, totaling 26 hp., was operated from direct current and was manually controlled.

Connected load on the new system is 3¾ horsepower. The building was re-wired for alternating current.

Cabinets for this installation were especially designed by the Midwest Mfg. Co. Cabinets are identical and have approximately 4-cu. ft. capacity each. Dimensions are height, 38 inches (including 6-inch legs); width, 20 inches; depth, 24½ inches.

Insulation is 2½ inches Balsam Wool, finish is vitreous enamel inside and Dulux outside. Floors can be cleaned beneath the cabinets, and the tops can be easily removed for refinishing.

Peerless model AV "Humidi-Pak" evaporators were installed in these cabinets. These evaporators have a capacity of 84 cubes per freezing and are equipped with model 205-M Automatic Products Co. expansion valves.

Each condensing unit is equipped with a Henry dryer, charged with Activated Alumina.

Refrigeration effect for the 36 cabinets in the north wing of the hotel is suppled by two model W ¾-hp. Copeland condensing units. Three model SW ¾-hp. Copeland units are connected to 39 cabinets.

Temperature control is by Penn back pressure controls.

The W-M Refrigeration Co., Copeland distributor in the territory, cooperated on the job, according to V. M. Wilson, head of Commercial Cooling Co.

Cold Canvass Calls on Commercial Prospects Bring Results, Kelvinator Survey Booklet Shows

DETROIT—Evidence that there is a dollar-and-cents value in cold canvass calls on commercial refrigeration prospects is contained in a "summary" booklet which Kelvinator is now distributing to its commercial retail salesmen throughout the country.

Called the "SalesScale," the booklet lists facts and figures on the value of each step in Kelvinator's "production line" method of commercial selling, compiled from results reported by distributors, dealers, and salesmen on the basis of their work through eight months of last year.

VALUE OF STEPS

Values of the various steps in the "production line" process were obtained by dividing the value of the sale into its component parts . . . business census contacts, album demonstrations, and proposals. All values are based on Kelvinator equipment only, and do not include installation charges or additional equipment made by other manufacturers.

Idea of the booklet is to convince Kelvinator commercial salesmen that, by following the "production line" method of selling, they can actually make more contacts, complete more effective demonstrations and presentations, and make more money than by their own haphazard type of work. The "SalesScale" shows by actual figures that there is a definite relationship between the number of "production line" operations completed and the number of actual sales made.

On standard commercial equipment, for example, the scale shows that 14.55 business census contacts, plus 3.85 album demonstrations, plus 2.63 personalized proposals, resulted in a sale.

On water coolers, a sale resulted from 13.54 census contacts, 3.08 demonstrations, and 1.23 proposals; on beverage coolers, a sale was the net of 6.92 census contacts, 3.97 demonstrations, and 3.30 personalized proposals.

AIR CONDITIONING

The scale was higher on air conditioning, but so was the average sale price. To bring about the sale, 55.95 census contacts, 11.68 demonstrations, and 5.43 proposals were required, on the national average.

Because the figures represent a national average for Kelvinator sale performance, the company presents them as a standard.

At the back of the booklet are a series of pages, one for each month from February through September, which the individual salesman can use to check his own performance against the 1938 national average.

Sets Up Distributorship For 'Precipitron'

TULSA, Okla.—John D. Warren has established the Air Rectifying Co. in the Thompson building here for distribution of the Westinghouse Precipitron, electrostatic air cleaner.

Basford Creates Demand & Then Supplies It

OAKLAND, Calif. — "Selling" a merchant on the profit possibilities of handling a certain product, and making the refrigeration equipment needed for this product only a comparative "incidental," has proved the key to added commercial refrigeration sales for H. L. Basford Co. here, reports Stanley F. Rock, of the firm's Oakland commercial department.

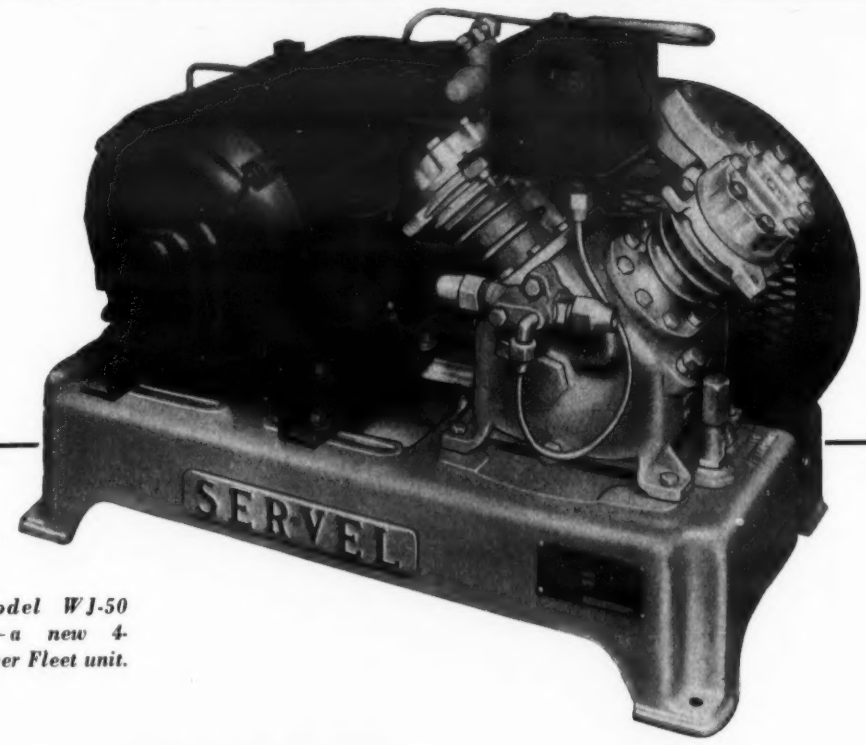
In approaching retailers, Basford salesmen stress the added sales volume possible through the addition of dairy products, soft drinks, frosted fruits and vegetables, etc. After they've convinced the merchant he can make extra money by handling the new product, they start selling the economy and food-preservation advantages of Basford's line of refrigerating equipment.

Mr. Rock calls this type of selling the "creative-educational" method.

"Super-market" installations recently made by the Oakland branch of the company include the Vittle Vendor, Oakland, and Villa's Complete Food Store, Albany. With the beginning of this year, the company has adopted Mills condensers and Drayer-Hower blower units for all commercial applications, Mr. Rock says.

Palm Bros. To Distribute Bastian-Blessing Line

MINNEAPOLIS — Palm Bros., Inc., Leonard distributor, has been named distributor in the northwestern territory for Bastian-Blessing Co. soda fountain equipment.



Servel Model WJ-50 (½ HP)—a new 4-cylinder Silver Fleet unit.

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AT LAST—you can sell commercial refrigeration on *ear appeal!*

The new 4-cylinder Servel Silver Fleet units are so *quiet* and so *smooth*, that you can *prove* your quality story by outright demonstration.

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SERVEL, Inc.
Electric Refrigeration and Air Conditioning Division
EVANSVILLE, INDIANA

Air Conditioning

Terhune Elaborates on What's Wrong With Engineering, Price & Merchandising Of Air-Conditioning Equipment

By E. A. Terhune, Eastern Manager, Electric Refrigeration and Air-Conditioning Division, Servel, Inc.

Your editorial in the Feb. 8 issue very forcefully presents certain general conditions that support the indictment I have made of the air-conditioning industry, to the effect that:—

"The Engineering is Wrong."
"The Prices are Wrong."
"The Merchandising is Wrong."

I believe you have set forth the general consensus of opinion in the presentation you have made, but when it comes down to recognizing some of the very pertinent and practical matters that affect the operation of the industry today, and in contrast to general theorizing, you have "missed the boat."

They say that 50,000 Frenchmen can't be wrong; but frankly, I believe that if this is the case then 37,000 probably can be wrong; and the 37,000 figuratively represent the great number practicing in the air-conditioning industry today without due regard for certain everyday conditions that exist.

BASIS FOR OPINIONS

My views, expressed herein, are not deductions made from a theory as to how the business should be run but from a rather wide and varied experience and contacts in the trade throughout the eastern United States with allied air-conditioning manufacturers, distributors, dealers, and salesmen.

You state that manufacturers have poured money into the industry and that it has cost dealers plenty. Granted that development costs must be incurred and that some dealers will make mistakes and lose money; still it is a further indictment of any industry to realize that management is not capable of building the business in a saner and more profitable way and without having its foundation on the graveyard of dealers who should not be sacrificed and who do not need to be to the extent that now exists.

'MISSIONARY' WORK

This development cost probably can be classified under the heading of "missionary" work, but the best missionary work in the world is the consummation of a profitable sale with a resultant satisfied customer. It is inexcusable that fundamentals should be so ignored as they are in the air-conditioning industry, to the detriment of most of those concerned.

What the air-conditioning industry needs is a more vivid recognition of the fundamental knowledge that the public should be sold **what** they want to buy, **when** they want to buy it, and in the **way** they want to buy it. That isn't being done in air conditioning today.

If you went through the World War you will more acutely understand what I mean by "running ahead of the artillery." Somebody gets shot in the back when that is done. The industrial curve which I made up and presented at the recent Servel Convention in New York clearly indicates the necessary periods of growth in the air conditioning or any other industry, and when manufacturers, dealers, or salesmen run too far ahead of the current point of saturation in that curve, they are running ahead of the artillery, and are in line for a fall.

JUMPED THE GUN

No manufacturer has the moral or practical right to push a distributor too far ahead, in his merchandising endeavors, of the current development of the industry. The result must inevitably be unjustifiable financial loss to the dealer and a further brake on a healthy stimulus through an utimately dissatisfied customer clientele.

The first fundamental mistake is the apparent utter disregard of the fact that air conditioning is unmistakably divided into two phases, and that the principles of engineering, pricing, and merchandising are as widely divergent in the two instances as has always been true in the commercial refrigeration business when we consider the large industrial contracted job (generally ammonia) in contrast to the so-called low-pressure machines that are built and merchandised almost exclusively on a specialty basis.

MASS SELLING DEMANDED

The specialty market, of its own definition and formation, demands mass selling. The contracted engineered type of job is not a mass marketing proposition and never will be, even though its dollar volume may go into the millions.

Products to satisfy the mass market through specialty selling must be engineered, priced, and merchandised under specialty marketing rules. This hasn't yet been done in the air-conditioning industry.

Your editorial, like many other expressions I have heard, gives a pretty fair analysis of that phase of the air-conditioning industry which affects the big contractor and does not give the answer to the problem for the prospective air-conditioning distributor who must and will emanate in the future from specialty organizations now existing or to be established.

BIG JOBS ARE SPECIAL

The big contracted engineering jobs will always be handled by the larger engineering contracting companies and not by the type of specialty distributor that we find in the present-day domestic or commercial refrigeration business.

By the same token, the big engineering and contracting concern is not, and will not be interested in the merchandising of room coolers or other package units or smaller air-conditioning applications which interest the specialty trade organization.

Consideration should be given to that phase of the air-conditioning industry which affects the people and the products in which we are interested (namely, distributors and dealers of the commercial refrigeration type) and not to matters extraneous and almost irrelevant to this phase of the business.

Let us analyze each of the three items of my indictment individually. The three are all intimately related to and tie up with one another, and a consideration of any one or more of them affects the balance.

The Engineering Is Wrong

The specialty distributor is not interested in complicated engineered jobs requiring expensive duct and installation work. He can't afford to finance the paper and the best way to put the average commercial refrigeration distributor out of business is to start him selling this type of equipment.

One repossession and the auctioneer's flag is up. A few more unsatisfactory jobs put in by incompetent and inexperienced distributors, and you have a further retarding and condemnation of air conditioning in that community because of the multiplicity of unsatisfied users.

NOT FOR 'PACKAGE'?

The engineering is wrong because the proper elements have not been engineered into air-conditioning equipment such as is required by the specialty organization. As a graduate engineer who never followed up that profession, I am not going to attempt to give detailed engineering design of every item, but rather to present the factors involved.

"Package units," both room cooler and store units, have not been developed as they should be. The dimensions have been too great and the eye appeal has been anything but desirable in the majority of cases. In the past and even today we find manufacturers incorporating refrigerating machines into self-contained room coolers and store coolers, and yet these machines never were designed for anything but the usual commercial refrigeration application.

The answer to dimensions is found primarily in the design of compressors and air-blowing equipment. Not until the engineering departments realize that capacity, efficiency, and small size must be obtained through greater machine unit speeds and higher air velocities, are we going to come near solving this detail of the general problem.

SEES SIZE REDUCTION

I predict that before too long a 1-ton air-conditioning machine, for example, will be produced in half the size in vogue today, in relatively the same way that some of the small hermetic household units were developed to half the size used 10 or 15 years ago to operate an ordinary domestic box.

Large ducts that are costly and unsightly certainly should be superseded by the smaller and more attractive arrangements where air velocities are stepped up and proper diffusers handle it satisfactorily.

Little has been done to simplify the smaller type of air-conditioning job where you have a machine remotely installed and where a minimum of ductwork is necessary. Interchangeability and multiplicity of hook-ups of package jobs for small commercial use have not been developed to enable the specialty distributor to have real flexibility in the application of his equipment.

ARTISTIC TOUCH NEEDED

Some day a smart manufacturer will hire a good designer who will be more of an artist than an engineer, who will make an attractive cabinet for both a room cooler and a store cooler, in the same way that "sex appeal" has been built into everything from a two-toned streamlined electric toaster or a three-cake package of soap to the up-to-date lines of the modern automobile.

What most people want to buy and what the specialty distributor wants to sell is package equipment plus the most simplified type of remote compressor installation for air-conditioning applications. You can't satisfy that market by boondoggling the distributor and John Q. Public with makeshift equipment salvaged from standard commercial refrigeration materials. The result is generally an abortion and a working example of what's wrong in the industry.

The engineering must be more compact, it must incorporate more eye appeal, it must develop new standards of quietness, and it must break away from irrelevant designs of an allied industry that even today is but a distant relation.

EXCEPTION, NOT THE RULE

Based on present day experience it would seem logical to state that a few products of various manufacturers come somewhere near meeting the demands of the present day trade, but these are the exception rather than the rule, and the business cannot successfully be built up on exceptions.

Furthermore, in view of the experience of the industry and its correlated industries involving similar engineering development, it is not very encouraging to realize that even in these few instances no great amount of foresight has been used to determine the demands of the future which even a little imagination and foresight can anticipate at this time.

The Prices Are Wrong

Wrong engineering and wrong merchandising are the parents of wrong prices. You can't have prices at the level at which the public can afford to buy air conditioning in the mass market of homes and the smaller shops (in the specialty organization class) without incorporating the economies into the job in the engineering department, without designing products that meet a mass market demand, and without merchandising those products on mass specialty selling principles and procedure.

Price and profit are relative, and there is a fair balance between the two, but this balance has not been reached at this stage of the air-conditioning industry. When package or self-contained equipment, or simplified remotely installed equipment can be sold in reasonable and profitable volume, then a sane balance will have been attained.

This figure will probably run about $200 a ton. When the right products and the proper merchandising are applied, air conditioning may look forward to volume production costs which have not yet even been approached in the machines of capacities sufficient for adequate air conditioning use.

The Merchandising Is Wrong

I marvel at the temerity of some manufacturers in the air-conditioning industry today. I can well understand how a few specialty organizations and larger engineering and contracting companies can be set up as adequate representatives for the larger engineered type of air-conditioning installation, but I cannot for the life of me understand how any one expects to take a group of commercial refrigeration distributors (comprising as they do electrical stores, hardware stores, service men, store fixture concerns, etc.) and weld them into a potent specialty sales organization when the products they are given to sell belong in a category outside the specialty field and are not essentially sold by specialty methods.

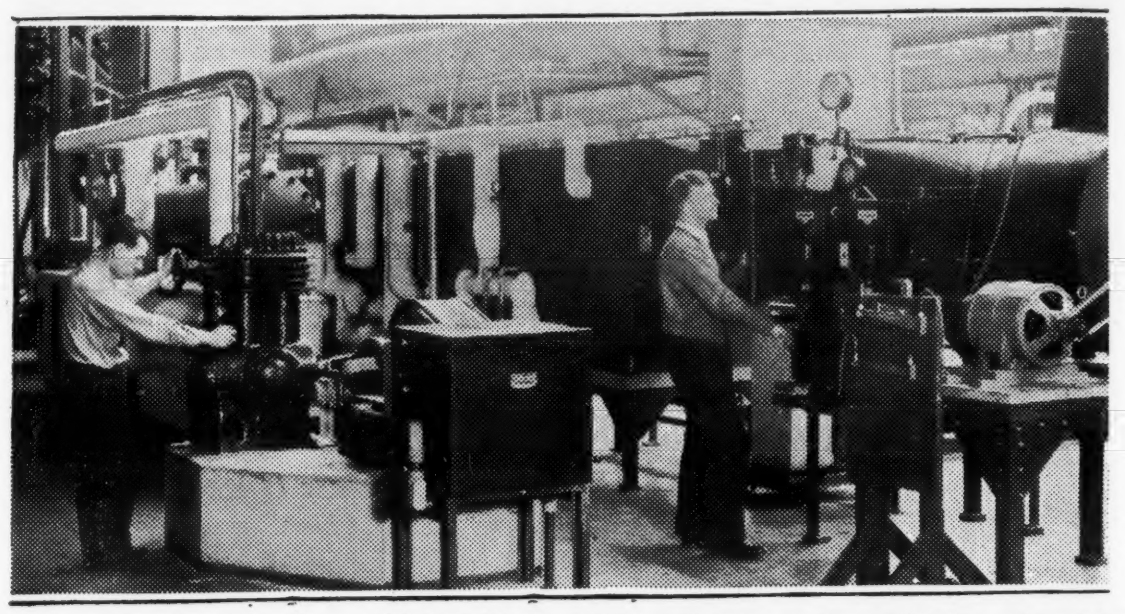
COMMERCIAL DEALERS OKAY

Among commercial distributors there are a few exceptions—those whose financial and engineering resources and previous experience have qualified them to make large contracted and engineered air-conditioning installations. Again I claim that the industry is not going to be successfully made up of a few exceptions.

We must differentiate between contracting air conditioning and specialty selling air conditioning and the merchandising of each phase must be according to the rules of each game. To date all we have seen in this regard is a sales set-up that at best can only be called a merchandising hash—a conglomeration of sales ideas and divergent forces that should be segregated each into its own class.

The rest of what's wrong with the merchandising has already been incorporated in the first part of this article as a part of the general fundamentals in the analysis of the trouble with the industry today.

Modern Laboratory Which Will Be In Action At Illinois U. Conference



On March 8 and 9 the University of Illinois holds its second conference on air conditioning, planned for the small dealer, installer, or owner of air conditioning. The above equipment, which provides a number of different treatments and combinations of air, is part of the university's research equipment, said to be as complete as any in the country. It will be open for inspection at the conference.

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line in all sizes
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Chicago Seals *cannot* slip: the precision-built compensating friction ring is fitted against the shaft shoulder, locking the seal in place.
Chicago Seals are easy to install.

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"FORBES PRODUCTS"

THE HIT OF THE CHICAGO SHOW

To those divisions of the refrigeration industry concerned with building, installing and servicing meat boxes, walk-in boxes and display cases, the new No. 450 Meat Box Control constituted a real sensation at the Chicago Show.

Never before have all the features of this control been available in one instrument, and the new HIGH PRESSURE *CUT-IN*, the most spectacular of all these features, is entirely new—***it has never been available before on ANY control.***

The problem of servicing meat boxes and similar refrigeration equipment is recognized by all those who are familiar with it. In fact, much of this work is handled on an annual contract basis because calls for service are so frequent.

No longer is it necessary for the serviceman to go out when the weather gets cold in order to change the setting on the pressure control—and again in the Spring to re-adjust it. The new No. 450 Meat Box Control eliminates the bulk of such servicing.

A critical situation always develops when the compressor and condenser are located in an unheated basement, storage room or shed. Under such conditions the pressure control setting made during warm weather to provide a cut-in point of 36° to 38° must be changed when the temperature of the air around the compressor and condenser drops lower than the box temperature.

When the temperature around the condensing unit approaches that in the meat box itself, refrigerant has a tendency to condense and drain into the compressor crank case. At the same time, the head pressure reduces and suction line pressure fails to increase to the point necessary to cause the pressure control to start the system. Only by reducing the cut-in setting of the pressure control can the system remain operative.

The HIGH PRESSURE *CUT-IN* feature of the new No. 450 Meat Box Control eliminates this difficulty entirely. It causes the compressor to start when high side pressure has been reduced to an adjustable, predetermined point. Once having started, control of the system is automatically taken over by the low side control and the system is not stopped until the suction pressure has been pulled down to the cut-out setting of the pressure control. This not only eliminates the possibility of the system becoming inoperative, but it also prevents water-cooled condensers from freezing because it cycles the system before the temperature at the condenser reaches the freezing point.

The above operation, which eliminates service calls and protects water cooled condensers, is automatically secured by simply setting the HIGH PRESSURE *CUT-IN* at a pressure point corresponding to between 38° and 50°.

This new feature, however, has another outstanding advantage. On those applications, particularly meat boxes, where both the box, and the condensing unit are in an unheated building, a reduction in the temperature around the case or box during cold weather, reduces the rate of heat transfer through the box insulation. Correspondingly, the refrigeration load is reduced—frequently to the point where exceptionally long "off" cycles result. The longer "off" cycle impairs circulation of air within the refrigerated space. This is acknowledged as one of the major causes of meat slime and spoilage because the lack of sufficient air circulation results in a humidity condition whereby the moisture content of the air within the case condenses on the meat.

Because a lowering of the air temperature around the meat box is accompanied by lower temperatures around the condensing unit, the head pressure also decreases.

Thus, with the High Pressure *Cut-In* properly adjusted, the Meat Box Control automatically starts the system under the above circumstances.

Note however that once the system is started, operation is taken over by the low side pressure control. The system is not stopped until the back pressure has been pulled down to the cut-out setting of the low side control.

Usually the High Pressure *Cut-In* is not called upon to operate until the suction pressure has increased almost to the cut-in setting of the pressure control or until some time during the defrosting period. This means that the long "off" periods are shortened, without sacrificing a period of defrosting and without appreciably reducing the box temperature lower than that provided for by the low pressure control setting.

In this manner the High Pressure *Cut-In* tends to correct humidity conditions within the meat box when caused by long "off" cycles. And further, when once adjusted, the Meat Box Control guards against this condition without the necessity of additional seasonal re-adjustments.

The No. 450 Meat Box Control is supplied with a specially calibrated range plate which shows the correct setting to provide a defrosting, cut-in setting of approximately 36°. And the range plate shows this setting for each of the three common refrigerants—Methyl Chloride, Sulphur Dioxide and Freon. Once adjusted, this defrosting setting is not disturbed by any change in cut-out setting.

In view of the fact that it is occasionally desirable to change the cut-out setting, the "Cold Control" feature includes an outside knob adjustment with calibrated dial for this purpose. This enables the user to change the box temperature quickly and easily—and without the possibility of disturbing the defrosting cut-in setting.

The No. 450 Control is equipped with a moisture and vermin proof snap switch that gives the instrument even greater reliability. The ingenious design of this switch provides its own snap action and does not depend on delicately balanced linkage to transmit pressure changes to the operating control mechanism.

The No. 450 Meat Box Control includes the customary High Pressure Safety Cut-out which stops the compressor in the event that the head pressure increases beyond a predetermined point. The High Pressure Cut-out setting has been greatly simplified by the addition of a calibrated range scale and indicator.

In addition to the Meat Box Control, the 450 line includes several other control types—the FB-3 Pressure Control, the FL-1 Temperature Control, the FLM-1 Control for Milk Coolers, together with the FIBA Pressure and the FIBL Temperature Controls, which incorporate a High Pressure Safety Cut-out.

For more detailed information, ask for Bulletins 181 and 182.

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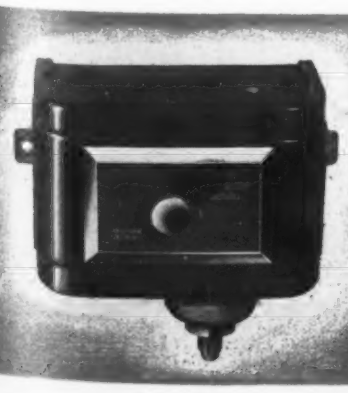
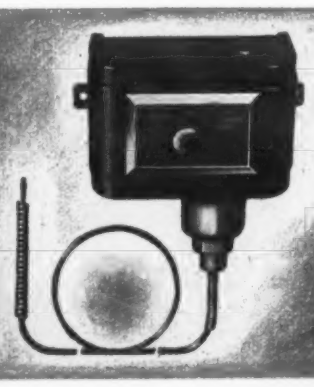
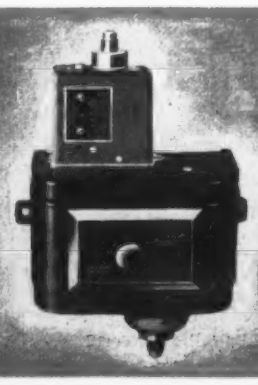


No. 450 Model FB-3 Pressure Control. Range 20 inches vacuum to 40 lbs. pressure. Range and Differential are adjustable.



No. 450 Model FL-1 Temperature Control. Range —40° to +25° or —5° to +60°. Also available with special bulb for milk Cooler applications.



No. 450 Model FIBA Dual Pressure Control. Similar to Model FB-3 except with High Pressure Cut-out added. Temperature type with High Pressure Cut-out available under Model FIBL.

AIR CONDITIONING & REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office; Established 1926 and registered as Electric Refrigeration News

Published Every Wednesday by BUSINESS NEWS PUBLISHING CO. 5229 Cass Ave., Detroit, Mich. Telephone Columbia 4242

Subscription Rates
U. S. and Possessions, Canada, and all countries in the Pan-American Postal Union: $4.00 per year; 2 years for $7.00. All other foreign countries: $6.00 per year. Single copy price, 20 cents. Ten or more copies, 15 cents each; 50 or more copies, 10 cents each. Send remittance with order.

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VOL. 26, NO. 9, SERIAL NO. 519
MARCH 1, 1939
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Annual Models

PRODUCTION figures on household electric refrigerators for January and February may be gratifyingly high, according to unofficial estimates. Several manufacturers have had to revise upward their original first quarter production schedules.

Especially well-favored in this regard have been manufacturers whose 1939 models represent distinct advances in service and styling over 1938 models. This may sound like a rather obvious remark; however, it is true that the industry hasn't always been sold on the annual model theory, and that those who favor it look upon the stimulus given 1939 sales by distinct model changes as additional proof for their arguments.

Model Changes Almost Indistinguishable in 1938

Prime example of a year in which annual models were not promoted is 1938. True, most manufacturers put out "1938 lines," but in many cases the difference between 1938 and 1937 models was so slight as to be almost indistinguishable to the average customer. Hence salesmen were able to say: "If I were you, lady, I'd buy this brand new 1937 model here; it's just like the 1938 job, and costs $30 less; you're a friend of mine, see, so I'm letting you in on this as a special favor."

This season, however, notable advances have been made, especially with regard to the *services* performed by the refrigerator. And the American public is registering approval with increased purchases.

Why Annual Models Have Economic Value

The theory and practice of putting out annual models has been under fire in recent years by the professional critics of our social order. Outside of stimulating sales, what good does it do?

Charles Kettering, General Motors vice president in charge of research, told Frigidaire distributors at their January convention in Dayton that "annual models bring progress out of the laboratories."

It was his contention that the automobile shows put a deadline on invention and engineering in that industry. If it weren't for the necessity of providing engineering advances which enable the manufacturer to compete with other exhibitors at the annual shows, the engineers would keep these improvements in the laboratories for further refinements. For, if the engineers are worth their salt, everything that goes through their hands they consider capable of improvement.

In addition, there are both the factory managers and the treasurers to consider. The treasurers are against model changes because they cost plenty in new tools, jigs, and dies. And the factory managers complain that just when they finally get all the kinks in their production line ironed out and the factory running smoothly, it's time to upset the apple cart again and start all over.

Aircraft Obsolescence Interesting Case In Point

An interesting illustration of this reluctance of many people to let new products get out into use can be had in all the current uproar over rearmament. Opponents of appropriations for new airplanes say: "But next year these planes may be obsolete."

True. It was true last year, and the year before that, and it will be true next year. By the time the first plane comes off the production line, it will probably be obsolete in the drafting room. But if we were always waiting for the latest design—as we have been—we'd never have any planes. Every once-in-a-while it's necessary to *put a date on progress.*

In the case of annual models for such products as automobiles and refrigerators, the necessity of meeting a deadline periodically hurries scientific progress, too. The engineering departments are just as anxious as the sales departments to "get the jump on" competition; and when the time comes for the annual unveilings of new models, the engineers are perhaps the most excited and proud of all concerned. Yet, if it were not for that deadline, the whole evolutionary process would undoubtedly become more leisurely.

Resale of Trade-Ins Redistributes Wealth

Very interesting, the critics might say; progress is fine for those who can afford it. But how about the underprivileged? How about the overall social values of annual models?

In answer to the first question, it can be noted that annual models spread the use of articles with high initial cost down into the lowest income brackets. Even WPA workers can and do buy used autos, refrigerators, radios, and washing machines. Annual models hasten obsolesence. They lead individuals and families with higher incomes to part with products long before their useful period of life is over, and thus enable low-income buyers to obtain mechanical aids to more abundant living at greatly devalued prices.

This process of regular trade-ins and resale at greatly scaled-down prices of the "used" products is sometimes termed "progressive dissatisfaction." It might also be called "redistribution of wealth."

As to the "overall social values," the critical sociologists might observe that annual models makes for *orderly obsolescence.* The critics have long been crying about the ruthlessness of obsolescence, its unpredictableness, its tendency toward "social and economic dislocation." Annual models provide an effective answer to this problem. You can plan for obsolescence under this system, be ready for it, and make use of it.

Stepped-Up Consumption Is What Really Counts

For practically all of us, however, any highbrow consideration of the "overall social values" of annual models doesn't seem nearly so important just now as the fact that the annual models brought out for the 1939 season are so attractive to buyers that they are helping to step up consumption, and thus are bringing smiles to the faces of manufacturers, distributors, and dealers. That's the kind of news that counts.

They'll Do It Every Time . . . By Jimmy Hatlo

SORRY TO BE LATE, DEAR, BUT WE'VE HAD A SHAKE-UP AT THE OFFICE AND THE BOSS HAS GIVEN ME A LOT MORE WORK. BOY! AM I TIRED!
WELL! I JUST WOULDN'T DO IT! YOU'RE TOO EASY-GOING AND LET THEM PUT EVERYTHING OVER ON YOU. I'D WALK RIGHT IN AND TELL THAT OLD SOURPUSS HE COULD GET SOMEBODY ELSE TO DO IT.
THAT RECORD HAS A FAMILIAR SOUND. IF MY WIFE HAD HER WAY, I'D GO DOWN AND KICK THE BOSS IN THE CHIN EVERY MORNING.
I WONDER HOW THESE DAMES THINK THEY EAT AND BUY BEAUTY CREAMS?
THE WAY MY WIFE TELLS IT TO ME REGULARLY - I'M JUST THE OFFICE MEAT BALL.
APT 4
1-26
GETTING THE DAILY PEP TALK FROM THE LITTLE WOMAN. THEY'LL DO IT EVERY TIME
THANX TO H.S. HERA - PHILADELPHIA

LETTERS

Name Change Suggested For New Association

Air Conditioning Manufacturers Association
Washington, D. C.

Mr. Knowlton:

Thank you for sending me a copy of the Bulletin of the proposed National Air Conditioning Association, which I have read with a great deal of interest. Certainly it has a most attractive form and worthwhile content.

Incidentally, under the name 'National Air Conditioning Association," the new organization may be confused with ACMA. Don't you think it would be desirable to have some such name as "National Air Conditioning *Dealers'* Association" so as to avoid confusion—just as the name "Air Conditioning Manufacturers Association" indicates clearly that ACMA is the national association of *manufacturers?*

With personal regards and every good wish,

WILLIAM B. HENDERSON,
Executive Vice President.

Mr. Natkin Nominates Albert Maillard

Natkin & Company
1800 Baltimore Ave.
Kansas City, Mo.

Mr. Knowlton:

I read your "Bulletin No. 1" of the proposed National Air Conditioning Association with a great deal of interest, and want to compliment you on getting behind a proposition that the air-conditioning industry has felt the need of for some time. If you will continue the aggressive spirit that you have taken, I feel confident that before long we will have an organization functioning that will be a credit to all of us.

To put a job like this across requires the earnest attention and efforts of a man who is fully familiar with the problems that the industry and its contractors, dealers, etc., have gone through in the last few years. It requires a man with not only a knowledge of air conditioning, but also sufficient executive ability to coordinate the various factors in the industry.

For this position, I would like to suggest Mr. Albert Maillard, former director of the Kansas City Air Conditioning Council. With the broad knowledge that he has of the subject and the entire situation, I feel that the successful formation of the organization would be assured with him as executive secretary. I am, personally, familiar with the wonderful job which Mr. Maillard did in Kansas City; and for that reason, I do not hesitate to recommend him as outstanding for this position.

I trust that the proposed organization will soon be in position to employ a secretary of this type, and that this man be given careful consideration if he is available.

B. NATKIN, President.

How Much Oil Does A Coldspot Use?

Sutton Sales Company
Distributors, Hudson Motor Cars,
Northeastern Michigan
Saginaw, Mich.

Sirs:

The writer understands that you furnish engineering data sufficient to repair different makes of refrigerators.

If so, will you kindly send me the information for a Coldspot, Model F2, 1931? I would also like to know exactly how much compressor oil to use.

The local dealer for Coldspots will not handle any repairs whatever; their only method is to return them to the factory for a complete overhaul.

In case you do not furnish the information needed perhaps you could tell me who does or give me some of the reasons why this box will not freeze.

Thanking you in advance for any information you may be able to give, I am,

F. S. MCRAE,
3344 Roberts St.

Gets an Idea From Story on Franklin

New Orleans Public Service, Inc.
New Orleans, La.

Editor:

I have just read with much interest your editorial, "The Greatest American" and this has given me an idea which I may make use of, "Benjamin Franklin and his Conciliatory Speech before the Constitutional Convention" in connection with a folder which I am now preparing along these lines as it concerns needed research on the matter of Land Value taxation. This is being buttressed with quotations from great men such as Abraham Lincoln, Jefferson, Theodore Roosevelt, Judge Brandeis, and others including Tolstoy and Lloyd George, all of whom, from the quotations which we will use, are or were in favor of this brand of economics, the unfortunate thing being that no one has ever taken the trouble to follow through regarding the necessary research to establish the position. That is now the objective.

I am going so much into this detail as I note the page editorial "Democracy Eating Itself Up," all of which indicates that business men, (and Benjamin Franklin was a business man par excellence) are getting much concerned over this matter, and we must do something to bring the American people together.

The disunity which we see around us is one of our greatest dangers, and I am giving a great deal of thought to this folder, a copy of which will be sent to you when it is completed. In the meantime please reciprocate by sending me an extra copy of the Feb. 15 issue of the NEWS.

This of course is a personal venture, and in a way constitute some sort of a hobby of mine.

W. E. CLEMENT.

Will It Take Eight Years?

Rust Hills
Electraviser
441 Ocean Avenue
Brooklyn, N. Y.

Editor:

There will probably be such a clamor for reprints of "What 'they say' about war down in Washington" on page 8 of your Feb. 22 issue, that I want to order 300 of them now for distribution to my customers.

The 'Turn to the right" editorial on page 14 is so relevant, that it should be included in the reprint. If all the press could present facts with the clarity and vigor you do, education of the people would not take eight years.

RUST HILLS.

Pronounced Influence On Business

Filtrine Manufacturing Co.
51-53 Lexington Ave.
Brooklyn, N. Y.

Editor:

You often have excellent editorials.

Your editorial in the Feb. 15 issue is so timely, that I wish to take this opportunity to congratulate you and your paper.

CHARLES F. HANSEL.

Answer: We are sometimes doubtful as to just how far we should go in dealing with subjects of this kind which are not strictly within the scope of the paper's title but we feel very keenly that there is a need for a great deal of effort to clarify the issues, particularly those of an economic nature which have such a pronounced influence upon business in general and the business of this industry in particular.

136 South 13th St.
Richmond, Ind.

Sirs:

Enclosed find $1.00, please extend my subscription another 13 weeks. Hope by then to be able to pay for a year in advance. I sure find a lot of information in the NEWS.

C. C. CARROLL

How To Sell To the Navy

By George F. Taubeneck

Chance For Business

Most gratifying feature of America's rearmament program, from the standpoint of manufacturers in the refrigeration and air-conditioning industry, is that the policy is to spread orders among as many plants as possible.

As the army and navy experts see it, in time of war our armament production would have to be expanded enormously. America's industrial plant is the best in the world, but it's out of practice on war production. Hence some practice should be given this year to as many factories as possible, so that all could get into swing fast if we become involved in somebody's else's problems again.

Furthermore, the idea is to farm out parts making to as many factories as possible, with complete assembly in other plants. There are, for example, 4,000 parts to the new machine guns. These parts can be made in dozens of individual factories, assembled in others.

Want to get some of this business? Here are some of the men to see:

Army: Assistant Secretary of War Louis Johnson; Colonel Harry K. Rutherford, chairman of the planning branch of the War Department in charge of industrial mobilization; Major General C. M. Wesson.

Navy: Assistant Secretary of the Navy Charles Edison; Commander M. E. Ring and A. B. Custer of the Navy Bureau of Supplies and Accounts.

* * *

See the Navy First

Partly because so many manufacturers will have the army in mind when looking for rearmament orders, and partly because the navy buys so many different varieties of supplies, it can be suggested that refrigeration and air-conditioning manufacturers see the navy first.

The navy has a much more centralized procurement system than the army. That means the technique of selling to the navy can be formulated more surely (about all you can say on selling to the army is that the lowest bidder usually gets the order).

And the navy buys everything from baby buggies to caskets.

Considering the United States Navy as a city with a huge population, it is evident that practically every human demand which would arise from such a city must be supplied.

In addition to the human demand, there are the technical professional requirements, plus the requirements of the numerous manufacturing and repairing plants maintained by the Navy.

* * *

Who is Eligible

Who can sell to the Navy? This may be answered negatively by a statute reading, "No person shall be received as a contractor who is not a manufacturer of, or regular dealer in, the articles which he offers to supply."

Therefore, if you are an established manufacturer or dealer in any line whatsoever, you are eligible to sell. To prove that you are "established," the Navy sometimes asks for testimonials from customers.

* * *

Mailing List

The first step for one desiring to sell to the Navy is to make application (no form required) to be placed upon the Navy's mailing list.

If the application is accepted, the seller is notified and given a list of commodities upon which to check the particular items on which he is prepared to bid. At present, there are some 15,000 names on this list.

The Bureau of Supplies and Accounts (the chief of which is the Paymaster General of the Navy) is the central purchasing department for the Navy, and has supervision of the purchase of all materials except as noted below:

The Bureau of Yards and Docks prepares schedules, opens bids, and makes contracts for all public works.

The Bureau of Ordnance takes all steps in the purchase of arms, ammunition, and gun forgings for the Navy.

The Solicitor for the Navy Department purchases and charters vessels.

The Marine Corps performs all its own purchase functions.

* * *

Local Purchases

Local purchases are made by purchasing officers, under the direction of the Bureau of Supplies and Accounts, wherever supply officers may be located, afloat or ashore, but principally at the following places:

Navy Yards—Portsmouth, N. H.; Boston; New York City; Philadelphia; Norfolk, Va.; Washington, D. C.; Charleston, S. C.; Puget Sound, Wash.

Naval Stations—Key West, Fla.; New Orleans; Cavite, P. I.

Naval Supply Station, Hampton Roads, Va.

Navy Supply Depot, South Brooklyn, N. Y.

Naval Training Station, Great Lakes, Ill.

Naval Air Station, Pensacola, Fla.

Navy Disbursing Office, Baltimore.

Navy Purchasing Office, San Francisco.

* * *

Types of Supplies

Following are the general types of supplies which the Navy purchases:

Guns, arms, mines, torpedoes, ammunition, flags, anchors, fuel, aeronautic apparatus, aircraft, boats, boilers and engines, pumps and parts, boat and ship fittings, engine-room and fire-room fittings, oils and lubricants, electric cable and wire, radio apparatus, electric apparatus and all accessories, precision instruments, blocks, rigging, cordage.

Rope, wire, boat and ship utensils, canvas, furniture, dry goods, bathroom and toilet fixtures and supplies, lighting apparatus (non-electric), fire surfacing and heat, insulating materials, gaskets, packing, rubber, hose, leather, flexible tubing, books, libraries, music, periodicals, professional publications, musical instruments, athletic apparatus, wearing apparel, brooms, brushes.

Lumber, timber, tools, hardware, bolts, pipe, non-flexible tubing, pipe fittings, metal in bars, metal in plates and sheets, metal shapes, foundry apparatus, acids, chemicals, soaps, paints, stationery, office equipment, provisions, medicines, surgical supplies, Navy Yard appliances, building material, power-driven appliances, mess gear, galley and laundry apparatus, ranges, stoves, miscellaneous articles.

There are about 60,000 items of supplies and equipment in common use by the Navy.

Pamphlets and leaflets, containing more detailed information on these items, with which all bidders should be familiar, may be had on application to the Bureau of Supplies and Accounts, Washington, D. C.

These pamphlets and leaflets list the standard specifications describing quality, grade, size, etc., of articles desired by the Navy. They also give general instructions for the submitting of proposals and bids on certain classes of merchandise and materials.

* * *

Forms and Rules

When the Navy puts through a requisition, a schedule is sent to all bidders on the application list. The various items are grouped into classes by trades or industries.

Form A, an all-important form, is sent with the schedule, two copies to each bidder. This form and the schedule, filled out and mailed in, constitute the formal proposal.

Guaranty required is to the effect that the bidder will execute the required contract and give bond for faithful performance of same if his offer is accepted.

Guarantee must be by a bonding company or by two responsible parties, or in form of a certified check for 25% of the total bid; or an annual standing guarantee may be arranged for with a bonding company which will cover all proposals submitted by the bidder during the year.

The law prohibits more than one bid under the same conditions from one party.

* * *

Opening the Bids

Submitted proposals are all opened concurrently and publicly in the Bureau of Supplies and Accounts, recorded in books open to inspection.

Awards are made to the lowest responsible bidder, except in a few cases of statutory exemption. Tie bids are decided by lot. Awards are made as soon as a decision is reached.

After award is made, a formal contract is prepared when the amount is more than $500. Bond is required to accompany the contract, amount of the bond varying with the amount of the contract.

Original contract, unsigned, is mailed to the contractor for signature and execution of bond. A memorandum containing all the essential data accompanies the contract to the contractor.

* * *

Getting Paid

This original contract, after being completed by the contractor, is returned to the Navy, signed by the Navy contracting officer, and forwarded to the Treasury Department, Office of the Auditor for the Navy Department.

Before material may be accepted and paid for by the Navy, it is required that it be inspected and passed as to quality and quantity by a qualified and responsible official.

Any necessary shipment is the responsibility of the contractor in regular commercial routine.

The contractor is advised in his contract where to submit his invoices or dealers' bills, and payment is prompt, if everything has been in order.

* * *

Special Note

It should be noted that the Navy always pays its bills. It might also be noted that both the Army and Navy have been in a long depression—almost decades of it, as a matter of fact. So they have become accustomed to working on an economical basis. Hence this sudden windfall is not likely to be squandered. It may have to last them for a long time.

Getting the 'Lowdown' on Staging a Show

Eastern unit of General Electric's road show, "Get Over Into Clover," is headed by John M. Wicht, manager of G-E home laundry section. Before starting Trouper Wicht besought Joe Cook, veteran funny man, for pointers, and then posed in best theatrical fashion.

Kortepeter Receives Apex Promotion

CLEVELAND—Ralph E. Kortepeter, manager of refrigeration sales for Apex-Rotarex Corp., has been promoted to the position of assistant general sales manager. A. C. Scott, manager of the company's San Francisco-Oakland (Calif.) territory, has been made manager of the central district, which includes the north-central states.

January Refrigerator Taxes Totaled $282,380

WASHINGTON, D. C.—Excise tax collections on mechanical refrigerators during January totaled $282,380.09, compared with $463,429.49 during the same month of 1938, according to statistics reported by the U. S. Bureau of Internal Revenue.

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Manufacturers of Fine Filters for . . .

MULTI-PURPOSE USES

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Over 10,000 Zenith Finishing Filters are sold each month to car owners who demand a better filter than that provided as standard car equipment. By the same token, every U. S. Government Navy Airplane Carrier and most all Air Bases are equipped with large capacity Zenith Filters for filtering the gasoline for Government airplanes.

FUEL OIL FILTERS
Zenith Filters, because of their large capacity and extreme filtering fineness, are now employed in stationary, automotive, railroad and marine Diesel engines—filtering the fuel oil to prevent clogging of injection nozzles.

COMPRESSED AIR FILTERS
The amazing ability indicated by Zenith Filters to filter out even water particles has caused them to be adopted for airbrakes on cars, trucks, and air-operated controls on streamline trains to eliminate moisture due to condensation in the airlines.

REFRIGERANT FILTERS
Most of the important electric refrigerator manufacturers have now adopted or recommend Zenith Refrigerant Filters for their dependability—new filtering efficiency and convenience in refrigerating systems using Sulphur Dioxide, Methyl Chloride or "Freon." They are unsurpassed as refrigerant filters

FOR ORIGINAL EQUIPMENT AND REPLACEMENT PURPOSES

HERE'S WHY THEY'RE USED

1. Zenith patented filter elements are 3 times finer than ordinary wire mesh filters.
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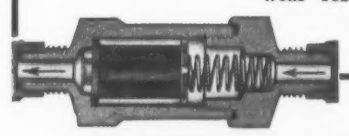
Write for descriptive literature and prices.



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Commercial Service

Refrigerant Charge, Line Sizes & Control Settings For Direct-Expansion Fountains

Editor's Note: Knowledge of the proper oil and refrigerant charges, the correct cut-in and cut-out points, and suction line sizes is necessary for installation and servicing of soda fountains. Basic information of this nature is presented in this article. The authors also warn against some "obvious" mistakes to be avoided in charging a system.

This article is a continuation of the series published weekly in the NEWS on installation and servicing of soda fountains, counter-type ice cream freezers, frozen foods cabinets, and similar products.

By Arch Black and Dean C. Seitz

Refrigerant and Oil Charge

Do not recommend to any of your customers that a dry direct expansion soda fountain be refrigerated by means of sulphur dioxide. In the Russ dry expansion fountain, the ice cream refrigeration coil is sealed in a hydrolene jacket. This jacket cannot be removed from the soda fountain in the field. As a result, any hazard which might permit the refrigeration coil sealed within the jacket to become corroded should be eliminated. This particular hazard is always present when sulphur dioxide is used as the refrigerant.

The Russ Co. assumes no responsibility for the replacements of corroded parts when sulphur dioxide condensing units are used in connection with their dry expansion soda fountain due to the fact that they have no control over the care used by the installation men in making the refrigerant connections.

"Freon-12" is now generally supplied as standard on all dry expansion fountains. At the time of an original installation both the condensing unit and the expansion valve should be checked to make certain that they are both for use with the same refrigerant.

It is also advisable to check the receiver of the condensing unit to make certain that it will hold the entire charge of liquid refrigerant in case it may be necessary to pump down the system. At the time the fountain is shipped there is a small holding charge of "Freon-12" in each refrigerant circuit. The coils are tested for leaks prior to shipment from the factory.

The proper charge of refrigerant for the various sizes of creamer units is listed in Table 1. The amount shown in this table for either "Freon-12" or methyl chloride represents the total charge which is necessary for the condensing unit, the receiver, and the refrigeration coils of the creamer unit.

The figures in Table 1 do not include the refrigerant necessary for the liquid line itself. In addition to the charges given in the table above, add ½ lb. of either refrigerant for each 12 feet of ⅜ inch liquid line.

At the time of an original installation, it is just as important to add the correct amount of oil as it is to add the correct amount of refrigerant. Each condensing unit manufacturer recommends the addition of a definite amount and kind of oil for each pound of refrigerant added by the installation man.

If no definite recommendations from the condensing unit manufacturer are available, it is usually safe to add 1/10 lb. of oil for each pound of refrigerant added.

Suction Line Size

The size of the suction line will have an effect on the cut-out setting of the condensing unit. If the suction line is too small, the condensing unit will operate on a lower back pressure than necessary, consequently reducing the efficiency of the unit materially.

In general, the larger the size of the suction line, the more efficient the installation will be due to the fact that the suction line pressure drop has been reduced to a minimum.

Table 2 gives the minimum sizes of suction line recommended for various lengths of run between the creamer unit and the condensing unit for the sizes of condensing unit shown in the left hand column.

The liquid line should be ⅜-inch O.D. copper tubing on all "Freon-12" installations. On methyl chloride installations one size smaller suction line may be used than shown in the above table for "Freon-12." For example, instead of using ⅝-inch O.D. suction lines where specified in Table 2, if the refrigerant is methyl chloride ½-inch O.D. tubing will be satisfactory.

Expansion Valve Settings

At the time the soda fountain is shipped from the Russ factory, all three thermostatic expansion valves are set only approximately correct. Local conditions, such as head pressure, condensing water temperature, temperatures desired, etc., necessitate a final adjustment by the service engineer.

No definite and accurate recommendations as to the superheat setting of each expansion valve can be made definitely. There is only one simple method of making a final adjustment on these expansion valves. This is by means of the frost-line method.

In making the final adjustment on an expansion valve by the frost line method, the frost line from the ice cream refrigeration circuit should be brought out into the heat interchanger. It should not be permitted to extend beyond the heat interchanger.

To make this adjustment, the valve should be opened until the frost line comes into sight. The frost should be permitted to extend slightly beyond the point desired, and then the valve closed a small fraction of a revolution at a time, until the frost line moves to the desired point.

On the 1936 Russ fountain, the entire ice cream refrigeration coil is in use when the frost line from the ice cream refrigeration circuit is brought out into the heat interchanger. This means that the temperature of the bottom of the ice cream compartment will be colder than it is on the top. This is the condition desired when packaged ice cream is stored on the bottom, and bulk ice cream is stored in the trays.

Due to the method of wrapping the ice cream refrigeration coil, previously explained, a gradual starving of the expansion valve will move the frost line inside the ice cream refrigeration jacket and finally make use of only the top section of refrigeration coil. When the coil is starved to this extent, the temperature difference between the top and bottom of a 5 gal. ice cream can is so small that the effect of the stub-tank is produced.

In setting the frost line for the water cooling refrigeration circuit, the expansion valves should be adjusted to maintain a uniform formation of ice from top to bottom in the water bath, and at the same time keep the frost line inside the creamer unit. This is accomplished by opening the valve until frost appears just outside the creamer unit and then gradually closing the valve until the frost line disappears from the suction line on the outside of the unit.

In setting the frost line on the jar enclosure coils, the valves should be adjusted to keep the frost within the jar enclosure itself. In order to accomplish this the valve will have to be throttled or starved to a great extent.

It is always advisable to check for shortage of refrigerant at the time of a new installation after each change of the expansion valve adjustment has been made. The valves should be adjusted only while the condensing unit is in operation. Do not make large changes in the setting of the valve at one time. To adjust them, open or close a quarter of a revolution at one time and allow intervals of 15 or 20 minutes before any further adjustment is made in order to determine accurately the effect of the previous adjustment.

Condensing Unit Switch Setting

The cut-out point: There is only one rule to be followed in setting the cut-out point of the condensing unit switch. It must be set lower than the lowest temperature at which the ice cream cold control breaks its electric circuit.

The reason for this is the fact that the customer has the privilege of setting the ice cream cold control at any point he desires. He may set it at its lowest setting, namely No. 9 point. If the condensing unit cuts out before the temperature corresponding to the No. 9 setting of the cold control has been reached, the electric current will continue to flow through the cold control and solenoid valves even though the condensing unit has been stopped. This will overheat the solenoid valve and permit it to burn out.

Obviously if the condensing unit stops before the solenoid valve is closed, it merely means that the temperature in the ice cream storage compartment is not as low as it should have been. The temperature in this case is being controlled by the condensing unit pressure switch and not by the cold control and solenoid valve.

The cut-out point of the condensing unit should not be set more than 2 or 3 inches, or 1 pound lower than the closing point of the solenoid valve. Reason for this is the fact that there is no temperature regulating valve in the suction line leading from the jar enclosure refrigeration coil. If the condensing unit were allowed to operate to an extremely low cut-out point, the jar enclosure would be reduced in temperature entirely too low.

The cut-in point. When one condensing unit is installed in a complete creamer unit, including the ice cream refrigeration circuit, the water refrigeration circuit, and the jar enclosure circuit, the condensing unit is started by either the jar enclosure circuit or the water cooling circuit. It is necessary for the condensing unit to cycle from two to four times each hour to maintain a uniform temperature in the ice cream refrigeration jacket.

Table 3 gives the approximate cut-in and cut-out points for various sizes of condensing units using either "Freon-12" or methyl chloride when one condensing unit is connected to the entire creamer unit.

If too small a suction line is used, the cut-out point will have to be reduced correspondingly to compensate for the suction line pressure loss. In any case the cut-out point should be at least 2 inches or 1 pound below the closing point of the solenoid valve when the cold control is set in its coldest position.

When one condensing unit is connected to the ice cream refrigerating circuit and a second condensing unit to the water cooling and jar enclosure refrigeration circuit, the cut-in and cut-out points found in Tables 4 and 5 may be used.

Table 1—Proper Charge of Refrigerant

Size of Unit	Pounds of F-12	Pounds of Methyl Chloride
20 Gallon	11 lbs.	7 lbs.
30 Gallon	12 lbs.	8 lbs.
40 Gallon	13 lbs.	9 lbs.
50 Gallon	14 lbs.	10 lbs.
60 Gallon	15 lbs.	11 lbs.

Table 2—Freon Suction Lines

Size of Compressor	Diameter of Tubing	Maximum Length of Run
½ hp.	⅝ in. O.D.	27 ft.
½ hp.	¾ in. O.D. or (2) ⅝ in. O.D.	75 ft.
¾ hp.	¾ in. O.D. or (2) ⅝ in. O.D.	40 ft.
1 hp.	¾ in. O.D. or (2) ⅝ in. O.D.	27 ft.
1 hp.	⅞ in. O.D.	60 ft.

Table 3—Complete Fountain on One Compressor

Compressor Size	Basic Settings Cut-In F-12 (Lbs.)	Cut-In Methyl Chloride (Lbs.)	Cut-Out F-12 (In.)	Cut-Out Methyl Chloride (In.)
½ hp.	10-18	5-12	2-3	7- 8
¾ hp.	10-18	5-12	4-6	9-11
1 hp.	10-18	5-12	5-7	10-12

Table 4—Ice Cream Compartment Only on One Unit

Compressor Size	Basic Settings Cut-In F-12 (Lbs.)	Cut-In Methyl Chloride (Lbs.)	Cut-Out F-12	Cut-Out Methyl Chloride (In.)
⅓ hp.	10	5	0 lbs.	3
½ hp.	10	5	2 in.	7
¾ hp.	10	5	5 in.	10

Table 5—Water & Jar Rack on One Compressor

Compressor Size	Basic Settings Cut-In F-12 (Lbs.)	Cut-In Methyl Chloride (Lbs.)	Cut-Out F-12 (Lbs.)	Cut-Out Methyl Chloride (Lbs.)
⅓ hp.	20	13	10	4
½ hp.	20	13	9	3
¾ hp.	20	13	8	2

After 12 Years Service Man Buys Out Employer

NEW ORLEANS—Twelve years a service man for an appliance dealership—then owner of the business. That's the story of George E. Muller, who recently bought out Rose Radio & Electrical Supply Co., the firm by which he had been employed.

KEROTEST
Valves and Fittings
The Standard of the Industry
Kerotest Manufacturing Co.
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Dayton V-BELTS
Silent, vibrationless, dependable, long-lasting. Powerful grip prevents slippage. A nearby distributor carries a complete stock for appliances and machines.
THE DAYTON RUBBER MFG. CO., DAYTON, OHIO
World's Largest Manufacturer of V-Belts

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Copper-Brazed Steel. Copper Coated Inside and Out. Sizes: ¼" to ⅝" O.D.
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BRUNNER
Send for the New
REFRIGERATION CATALOG
Seven Models of Compressors
Fifty-eight Models of High sides from ¼ H.P. to 15 H.P.
BRUNNER MANUFACTURING CO.
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SAVE 20-40%
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Alco Valve Co. - St. Louis, Mo.

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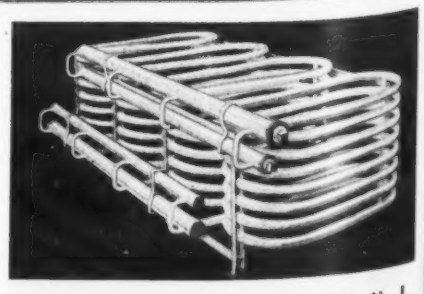

KRAMER TRENTON AUTO RADIATOR WORKS TRENTON, N. J.

Locker Storages

Large Scale Locker Plant Thrives Because It Supplies Meat & Frozen Food To Locker Users

SEATTLE—One of the largest cold storage locker plants in the country is a 1,000-locker plant here in Seattle, used exclusively by residents of the metropolitan area, and operated by Ralph W. Wright and B. T. Hamilton.

Built on a street in a shopping district, the Frozen Food Service locker plant in its outward appearance looks much like a regular retail store. Half of the front is occupied by a complete meat market, and the other half is furnished as an office for interviewing customers and prospects and transacting rentals.

The meat market enables Mr. Wright and Mr. Hamilton to overcome the common objection made by city housewives that they "haven't anything to put in a locker," for they can sell the women large quantities of meat at wholesale prices. Then, of course, the next step is to get the women to rent lockers to keep their meat.

Meats are cut, processed, wrapped, frozen, and stored in the usual locker plant way. Wrapping is done so that quality of meats may easily be judged, white butcher paper denoting an outside cut, and parchment denoting a cut closer to the bone.

Frozen Food Service also distributes a complete line of frozen foods, including fruits and vegetables, selling them to locker renters at wholesale prices.

The frozen foods also are sold at retail in the meat market.

In the company's newspaper advertisements, emphasis has been placed on the service offered to game hunters. For picking and dressing a bird, 25 cents is charged. Two cents a pound is charged for dressing and cutting up a game animal, including bear, deer, moose, elk, and others.

This service, state the locker plant owners, has proved very popular, and also has attracted more locker renters.

An important part of the sales promotion plan used by the proprietors is the education of housewives in the art of using a locker to the utmost advantage. A booklet telling how to prepare foods for the locker is distributed to the customers, consultation with the management on any food problem is invited, information as to where certain kinds of foods may be purchased at the lowest price is given for the asking.

Called Frozen Food Service, Inc., the plant has lockers made of native Washington Sitka spruce.

Native end-matched fir was used in making the partitions and walls within the plant, and insulation was provided by 16 inches of kiln-dried spruce planer shavings.

The lockers themselves have long narrow horizontal slits for ventilation, and are built in tiers six lockers high.

Temperature in the locker room is held at from zero to 4° F., and in the sharp freeze room at from —10 to —20° F. In the chill room, where foods first are placed before being processed, the temperature is maintained at about 35° F.

A Frick blower unit cools the locker room, and other Frick equipment is used for the chill and quick freeze rooms.

Heavy-duty, flush-mounted hardware is used on the lockers to assure the renters protection from tampering, and the doors are mortised to prevent sagging or improper closing.

Baker Co. Forced-Draft Freezer Unit Said To Cut Time 80%

OMAHA, Neb.—A new forced-draft refrigerating unit for use in the quick-freeze room of cold storage locker plants, which is claimed to cut freezing time as much as 80%, has been developed by Baker Ice Machine Co.

With the new unit, it is claimed, fruits and vegetables are thoroughly frozen in one to two hours, in contrast to the eight to 10 hours that most other locker plants consider necessary for the job.

At the same time, Baker engineers assert, the new unit maintains sub-zero temperatures throughout the entire sharp-freeze room, so that meats are frozen simultaneously with fruits and vegetables, at no additional expense.

Defrosting is accomplished with the new unit without interrupting freezing activities, it is claimed, because the cooling coils are entirely enclosed. Brine spray jets within the unit can be turned on, and the defrosting completed within a few minutes.

The new quick freezing unit has been adapted from a standard Baker refrigerating unit. Sub-zero blasts of air are forced through the freezing tunnels, freezing the fruits and vegetables placed on trays within the tunnels, and are then expelled into the sharp-freeze room while still at low temperature.

Side doors in the unit make trays in the freezing tunnels easy to get at. Through use of the unit, it is claimed, the average locker plant can be converted into a frosted food plant without great additional cost.

Frick Issues Bulletin On Metal Lockers

WAYNESBORO, Pa.—A bulletin describing the uses and advantages of Knickerbocker refrigerated food lockers recently has been issued by Frick Co.

In addition to giving a typical locker storage plant layout plan and pictures of actual installations, the bulletin suggests the temperatures that should be maintained in the various divisions of the plant, gives specifications of Knickerbocker lockers, and the sizes in which they are available.

Cooperative Storage Firm Organized In Wisconsin

ST. CROIX FALLS, Wis.—The Farmers Co-Operative Cold Storage Co. has been organized in this city to operate a plant for refrigeration, cold storage, and warehousing.

Organizers of the company are J. M. Thompson, J. M. Fast, and E. L. Benjamin.

Proposed In Georgia

LYONS, Ga.—The Lyons Ice & Cold Storage Co. will construct a new refrigerated locker storage plant here at an early date, declares Paul House, manager.

Tulsa Owner Forced To Expand Plant

TULSA, Okla.—Enthusiastic reception and patronage of the Banfield Foods & Locker plant here have caused Frank Banfield, owner, to expand the plant twice in the four months it has been in business.

The expansion program that has just been completed in order to accommodate the volume of business triples the original plant space.

The Banfield Frozen Foods Co., has taken over two additional large storerooms adjoining its original storeroom, with new lockers occupying 50 x 78 feet of this space. The investment in this plant now represents more than $30,000.

Essay Contest Publicizes New Locker Plant

OLNEY, Ill.—To attract attention to the opening of its cold storage locker plant here on Feb. 25, the Ebner Ice & Cold Storage Co. conducted a "best reason" contest.

Prizes totaling $150 were offered to persons who wrote the best letters on "Why I Use or Would Like to Use a Frozen Food Locker."

Chamber of Commerce Plans

OXFORD, Miss. — The Junior Chamber of Commerce here is promoting a cold storage locker plant for the preservation of meat, vegetables, and fruit in this area.

Ohio Farmers Complete Plans For Plant

TIPPECANOE CITY, Ohio—Farmers' Locker Storage & Provision Co., Inc. has been organized here and ground has been purchased for a 500-locker refrigerated storage plant. Actual construction of the building is scheduled to begin as soon as possible and to be completed by May 1.

The 72 x 42 x 14-foot building will be constructed of brick, hollow tile, and concrete. The chill room, locker room, sharp-freeze room, and aging room will be insulated with cork. Temperatures in the various rooms will range from 34° to —20° F.

C. C. Slade is president and treasurer of the new organization, and Charles Rodgers is vice president. Directors are Orville Jackson, Henry LaTourrette, and Russel Kuntz.

Nebraska Law Paves Way To Inspection

LINCOLN, Neb.—Contents of refrigerated lockers in Nebraska may be inspected at any time by any authorized agent of the state game commission or other officers authorized to enforce the regulations of the commission, if a bill recently introduced in the legislature is passed.

The proposed law applies to cold storage plant owners or operators, and persons renting lockers.

Plant Being Planned In Holly Springs, Miss.

HOLLY SPRINGS, Miss. — A quick-freezing locker storage plant with a capacity of 300 lockers will be built here as soon as 200 persons sign for space, it was announced by R. B. Snowden, Jr., of Memphis, sponsor of the plant.

One For Albion, N.Y.

ALBION, N. Y.—A 500-unit cold storage locker plant, first of its kind in this section, was installed recently at the Growers Cold Storage Co. plant here. Francis H. Blake is president of the company.

Hupp Awarded Contract For Utah Installation

SPANISH FORK, Utah—Paul H. Hupp, Baker Ice Machine Co. distributor of Salt Lake City, has been awarded the contract for the refrigerating machinery to be installed in the new cold storage locker plant and food store being constructed here by R. B. Money.

The cold storage locker plant will cost approximately $10,000, which includes remodeling of the Old Hayes building on South Main St. Operation will begin next month.

H. W. Palmer will operate the food store and meat market in the front of the building. The cold storage locker plant will be in the rear.

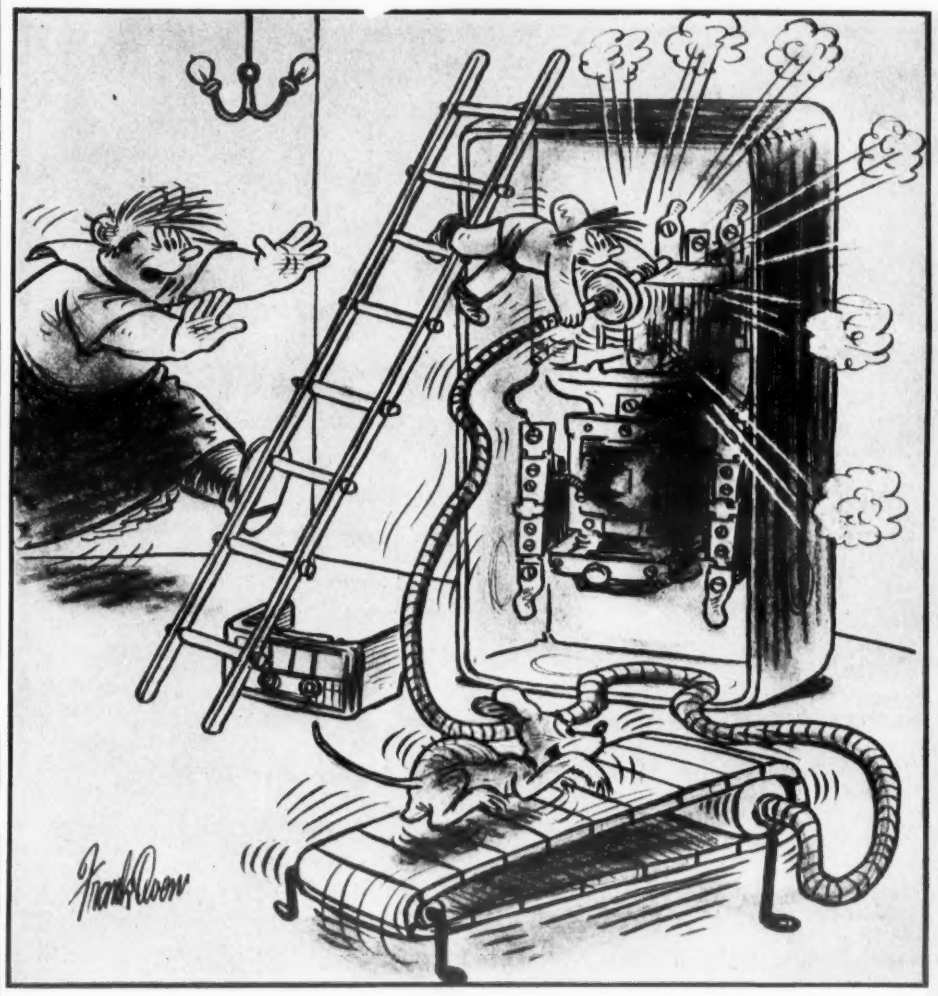
New Hampshire Group To Consider Plans

CONCORD, N. H.—Agriculturists in the vicinity of Concord are discussing the possibility of constructing a local cooperatively farmer owned and operated cold storage locker plant for apples, meat, fruit, and other perishable produce grown in this section of the state, George M. Putnam, president of the New Hampshire Farm Bureau disclosed last week.

Mr. Putnam said that lockers in the cold storage plant would be used by the owners and other persons desiring to rent them to place goods to be sold or used personally.

'Raspberry King' Places Unit In Wyoming

RIVERTON, Wyo.—A small plant for quick freezing raspberries and holding them in cold storage for release as the market demands has been constructed by Wint Sensabaugh, known as the "Raspberry King" of Wyoming. It is said to be this state's first processing plant for frozen foods, although retail firms at Casper and Laramie recently have taken on refrigerated display cases for handling quick-frozen foods jobbed through Denver.



"No, no! Mama has told you never to clean those contacts!"

No maintenance man would use a flexible shaft grinder to dress starter contacts. But maintenance men do have to clean or file copper contacts regularly, or they heat up and cause trouble. With the Allen-Bradley solenoid starter you can forget about contacts. Their double break, silver alloy contacts are always in perfect condition. They never need cleaning or filing.

Bulletin 709 Solenoid Starter

For heating, air conditioning, and refrigeration applications, where starters are so often neglected, Allen-Bradley solenoid starters are ideal. They are so simple in construction that even ordinary trouble is avoided. Nor will they trouble you with unnecessary shutdowns, even though line voltage conditions are bad.

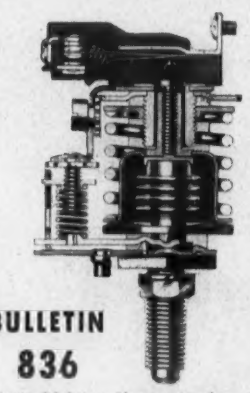
It is easy to install these starters because of their generous wiring space, white interiors, accessible terminals, many knockouts, and removable cabinet cover. Write for descriptive bulletin.

Allen-Bradley Company — 1313 S. First St. Milwaukee

ALLEN-BRADLEY
SOLENOID MOTOR CONTROL

Now you can get
ACCURATE
Pressure & Temperature
CONTROL

Regardless of vibration, the new Allen-Bradley Bulletin 836 will maintain pressures and temperatures within close limits. Its simple mechanism is a guarantee of long trouble-free operation.



BULLETIN 836

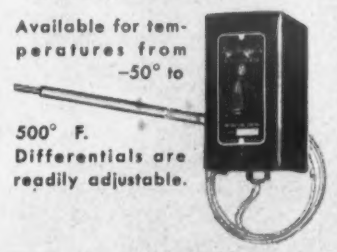
Bulletin 836 is self-contained and flexible in application. Units can be assembled in any combination, in any position.

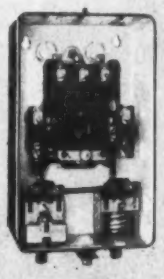
PRESSURE

Available for pressure control in capacities up to 300 pounds and vacuums to 30 inches.

TEMPERATURE

Available for temperatures from —50° to 500° F. Differentials are readily adjustable.





SPECIAL APPLICATIONS

The Bulletin 709, Size 1, solenoid motor starter with built-in low pressure switch and with high pressure cut-out.

Service Methods

Instructions For the Installation and Care Of Small Capacitor Single Phase Motors

By the Engineering Department, Century Electric Co.

A type CSH capacitor start induction run motor consists of a squirrel cage rotor and a stator which contains a main winding and a phase (or starting) winding. A high capacity, intermittent duty, electrolytic capacitor is connected in series with the starting (or phase) winding and is usually attached to the outside of the motor.

When the motor has accelerated to the speed for which the governor has been set, the governor weight mechanism opens the cut-out switch and thereby disconnects the starting winding and capacitor from the circuit. Thereafter, the motor operates as a single phase, squirrel cage induction motor.

CHARACTERISTICS OF MOTORS

A type CPH capacitor start, capacitor run motor consists of a squirrel cage rotor and a stator which contains a main and a phase winding. Connected in series with the phase winding is a high capacity, intermittent duty, electrolytic capacitor and a low capacity, continuous duty, oil-filled capacitor. The two capacitors are in parallel.

When the motor has accelerated to the speed for which the governor is set, the electrolytic capacitor is disconnected from the circuit. The continuous duty capacitor remains in series with the phase winding, and thereafter the motor runs usually as an unbalanced two phase, squirrel cage induction motor. The two capacitors are installed in an enclosing case which is usually attached to the outside of the motor.

On some sizes a continuous duty capacitor is used, with a transformer which, by changing the voltage applied to the capacitor, produces an effect similar to the use of two capacitors.

CSX and CPX motors are similar to the CSH and the CPH respectively, but are designed for lower torque. Consequently, these motors are not intended for driving compressors or stokers, or other apparatus with heavy break-away load.

Multi-speed capacitor motors are similar to single speed motors except that they have two separate sets of windings, each consisting of a main and a phase winding.

Adding To Installation and Service Man's Knowledge

Information presented in this article on the installation, care, and adjustment of fractional horsepower capacitor single-phase motors has been prepared by engineers of the Century Electric Co. and, of course, applies particularly to Century motors.

However, much of the information will be of aid to the serviceman in the installation and care, and the diagnosing of service troubles, in all motors of this type.

Before Starting Motor For the First Time

1. Make certain that the line voltage and frequency agree with the nameplate marking of the motor. If the motor is a dual voltage motor see that the leads are connected for the voltage on which it is to operate.

2. Check the ampere rating of the line fuses and see that the overload protective device in the starter, if any, is properly set. The ampere rating of the fuses should be approximately 10 to 25% higher than the ampere rating of the motor.

3. Turn the driven equipment by hand to see that it does not bind but turns readily and that the motor armature moves freely.

4. Make sure that the bearings are lubricated in accordance with instructions on the tag furnished with the motor.

5. See that the motor is securely fastened to its base or foundation, and that all connections have been made in accordance with the tag (and connection diagram, if any), furnished with the motor, and the connection diagram furnished with the starter. **Do not throw these away.** They might be useful some other time. Except on portable units the motor frame should be grounded. On cushion mounted motors the frame is grounded to the base by a wire concealed in the rubber rings. Paint should be scraped away to make good ground connection.

6. Run the motor for a short time without load to check starting and rotation. If rotation must be changed consult tag attached to the motor. Rotation can usually be changed by interchanging leads, except on dual voltage motors with built-in overload device.

7. The belt should be only tight enough to prevent slipping. Check alignment of driving and driven shafts, couplings, or pulleys. Too great belt tension or misalignment may prevent motor from starting its load and cause rapid bearing wear. If pulley ratio is such as to require excessive belt tension, ratio must be changed. If possible the lower side of the belt should be the driving side.

Do not drive or press the pulley or coupling on the shaft without providing counter thrust at the opposite end. Doing so may injure the bearing, destroy the end thrust washers or cause misalignment.

8. If the motor is equipped with a built-in overload device such as Fusetron or Micro Switch see that the reset button, if any, has been depressed or the fuse plugs screwed in tight. The motor should be connected to the line in such a way that these devices are in the "hot" side of the line.

The "hot" side of the line can be determined by connecting one lead from a test lamp to the ground, and the other alternately to each side of the line. The lamp will glow when connected to the "hot" side. Single pole switches and control devices should also be connected in the "hot" side.

9. If the motor has been exposed to dirt, grit, or moisture, as in damp cellars, new, or unoccupied buildings, clean and dry thoroughly. If windings have been exposed to moisture, remove to competent service shop for drying. Never start a motor which has been wet without having it thoroughly dried, either by baking in an oven at not more than 85° C., (185° F.) or passing low voltage through the windings until dry.

10. Since Century motors are fully tested and inspected before shipment, any trouble which appears to lie with the motor will, in the majority of cases, be due to causes outside the motor. Therefore, in case of trouble, the driven apparatus should be carefully inspected for overloads, binding, lack of oil, etc. If the cause of the trouble cannot be located in this way, follow the suggestions in paragraphs 11 to 27.

If the Motor Fails to Start

11. NO VOLTAGE

Check for voltage at motor terminals with test lamp or voltmeter. Check for blown fuses, or open overload device in starter. If motor is equipped with a Fusetron, see that the fuse plug is not open and that it is screwed down tight.

12. LOW VOLTAGE

Measure the voltage at the motor terminals with the switch closed. Voltage should read within 10% of the voltage stamped on motor nameplate. Overloaded transformers or circuits, or too light lead-in wire may cause low voltage. If the former, check with the power company. Overloaded circuits in the building can be found by comparing the voltage at the meter with the voltage at the motor terminals with the switch closed.

13. CUT-OUT SWITCH OPERATION

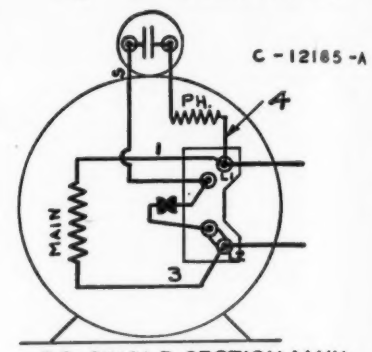
The cut-out switch mechanism consists of a normally open switch mounted in the front end bracket, and a rotating part called the governor weight assembly, which consists of a black bakelite disc so supported that it is moved back and forth along the shaft by the operation of the governor weights. At standstill the pressure of the disc against the switch holds it closed. When the motor has accelerated to a predetermined speed the disc is withdrawn from the switch, allowing it to open.

The operation of the switch may be observed by removing the inspection plate in the end bracket. If the governor disc does not hold the switch closed, the motor cannot start. This may call for additional end play washers between the shaft shoulder and the bearing.

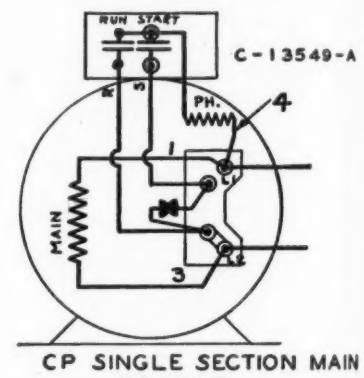
Dirty or corroded contact points may also keep the motor from starting. See that the contacts are clean. With the load disconnected from the motor, close the starting switch. If the motor does not start, start it by hand, and listen for the characteristic click of the governor as the motor speeds up and also when the switch has been opened and the motor slows down. Absence of this click may indicate that the governor weights have become clogged, or that the spring is too strong.

Continued operation under this condition may cause the phase winding to burn up. Remove the motor to the service shop for adjustment. Note: Type "C" capacitor motors have a continuous duty capacitor in the phase winding at all times, and therefore, do not have a cut-out switch or governor. Such motors are used only for shaft mounted propellor fans.

Fig. 1—Connections



CS SINGLE SECTION MAIN 110 VOLT



CP SINGLE SECTION MAIN 110 VOLT

Diagrams showing capacitor connections (windings and connections vary with rating).

14. OPEN OVERLOAD DEVICE

If the motor is equipped with a built-in micro switch or similar overload device, remove the coverplate in the end bracket on which the switch is mounted and see if the switch contact is closed. Do not attempt to adjust this switch or to test its operation with a match. Doing so may destroy it. If switch is permanently open remove motor to service shop for repairs.

15. GROUNDED FIELD

If motor gets very hot, produces shock when touched, or if idle watts are excessive, test for field ground with test lamp across field leads and frame. If grounded, remove motor to service shop for repairs.

16. OPEN CIRCUITED FIELD

These motors have a main and a phase winding in the stator. With the leads disconnected from the capacitor, apply current to motor. If the main winding is all right, motor will hum. If the main winding tests O.K. connect a test lamp between the phase lead (the black lead) from the capacitor and the other capacitor lead. Close the starting switch. If the phase winding is all right, the lamp will glow and the motor may attempt to start. If either winding is open, remove motor to service shop for repairs.

17. FAULTY CAPACITOR

If the starting (electrolytic) capacitor is faulty the motor starting

(Concluded on Page 15, Column 1)

PEERLESS

PEERLESS of AMERICA, Inc.

Chicago - - New York - - Los Angeles

"We have been advertisers in your paper for the past twelve years, and have found it the best means of advertising our product to the particular trade to whom we sell. It has been a great help to our jobbers and their customers. We have definitely secured numerous new accounts from these advertisements, not only in the United States, but also in the foreign market.

"Recently we have been taking full-page ads in your paper and our full-page ad of January 11th, of one of our new products, was the most outstanding ad that we have ever had. In a week's time we had over two hundred inquiries referring to this advertisement.

"We are definitely sold on advertising in your paper, and you can count on us as one of your permanent advertisers."

- - M. W. Knight, Gen. Sales Mgr., Peerless of America, Inc.

It is a pleasure to look back over the records and find that while Peerless of America has been expanding and growing during the past several years their advertising in the News also has shown a steady, consistent increase.

Air Conditioning & Refrigeration News

"The Newspaper of the Industry"

Adjustment Methods On a Capacitor Type Refrigerator Motor

(*Concluded from Page 14, Column 5*)

torque will be weak and the motor may not start at all but may run if started by hand.

If the running (oil-filled) capacitor on capacitor start and run motors is defective, the motor will heat, hum, and tend to slow down after the cut-out switch has opened.

A capacitor can be tested for open circuit or short circuit as follows: Charge it with DC (if available), preferably through a resistance or test lamp. If no discharge is evident on immediate short circuit, an open or a short is indicated. If no DC is available, charge with AC. Try charging on AC several times to make certain that the capacitor has had a chance to become charged.

Loss of capacity can be checked as follows: Connect AC ammeter between phase winding and line I—(See No. 4 in Fig. 1). Measure the AC current input in amperes and the voltage across the capacitor terminals. Then

$$C = \frac{I \times K}{E} \text{ when}$$

C = Capacity in microfarads.
I = Current input in amperes.
E = Voltage across capacitor terminals.
K = 2650 on 60 cycle circuits.
K = 3185 on 50 cycle circuits.
K = 6370 on 25 cycle circuits.

If C found in this way is much less than the microfarads stamped on the capacitor, loss of capacity is indicated. These readings should be taken during the starting period, but if the motor will not start, quick readings at the moment the starting switch is closed will suffice.

If capacitor is open, short circuited or weak—replace. Replacement capacitors should not be of lower capacity or voltage than the original. In soldering connections, do not use acid flux.

(Note 1) Electrolytic capacitors if exposed to temperatures 20° F. and lower may temporarily lose enough capacity so that the motor will not start, and may cause the windings to burn up, as the heat generated by the stalled motor will not heat the capacitor in time. Temperature of capacitor should be raised by running the motor idle or by other means. Capacitors should not be operated in temperatures exceeding 165° F.

(Note 2) Frequency of operation of electrolytic capacitors should not exceed two starts per minute of three seconds acceleration each, or three to four starts per minute at less than two seconds acceleration, provided the total accelerating time (i.e. time before switch opens) does not exceed one to two minutes per hour.

18. EXCESSIVE LOAD

May be approximately determined by checking the ampere input with the nameplate marking. Excessive load may prevent the motor from accelerating to the speed at which the governor acts and cause the phase winding to burn up (see paragraphs 3 and 7).

(Note) CSX and CPX motors are designed for light starting duty and may stall when applied to a load with heavy break-away torque.

19. TIGHT BEARINGS

Test by turning armature by hand. If adding oil does not help, bearings must be replaced.

If Operation of Motor Is Unsatisfactory

21. IF MOTOR RUNS HOT

Do not judge temperature by hand—use thermometer. Motor insulation will successfully withstand a maximum observable temperature of 90° C. (194° F.).

Check for grounded field (paragraph 15).

Check for tight bearings (paragraph 19). Excessive load (paragraph 18).

Check for wrong voltage (paragraphs 1 and 12).

Check for defective capacitor (paragraph 17).

Check for faulty switch operation (paragraph 13).

22. IF MOTOR DOES NOT COME UP TO SPEED

Make same checks as for 21.

23. EXCESSIVE BEARING WEAR

Check belt tension and alignment (paragraph 7).

Check for unclean, incorrect, or insufficient oil (see tag furnished with the motor).

If bearings have become clogged with dirt, clean thoroughly.

Worn bearings should be replaced.

24. NOISY MOTOR OR EXCESSIVE NOISE IN MOTOR

Check for worn bearings (paragraph 23).

Check for excessive end play. If necessary add additional end play washers.

Check for loose parts on motor, loose hold-down bolts, loose pulley, bad alignment, bad belts.

See that the capacitor container is securely fastened to the motor. Check for unbalanced rotor or uneven air gap; burrs on shaft shoulders.

25. MOTOR PRODUCES SHOCK

Check for grounded stator (paragraph 15).

Cushion mounted motors have a "ground" strip which carries static electricity across rubber mounting to ground. If static charge is retained the strip may be broken or connections may be poor. The frames of all motors should be grounded (see paragraph 5).

26. ROTOR RUBS STATOR

Clean burrs or dirt from rotor and stator and check for worn bearings.

27. RADIO INTERFERENCE

Check for poor ground connections. Static electricity generated by the belts may cause radio noises if motor frame is not thoroughly grounded (paragraph 5).

Check for loose contacts in switch, fuses, or starter.

Capacitor motors ordinarily will not cause radio interference. Sometimes vibration may cause the capacitor to move so that it touches the metal container. This may cause radio interference. Open the container, remove the contact, and replace paper packing so capacitor cannot shift.

Suggestions For Prolonging Life of Motors

31. Check lubrication of bearings two or three times a year. Wool yarn packed bearings, when once properly oiled, rarely require additional oil.

32. Keep the governor mechanism free from dirt.

Keep the switch contact points clean.

33. Remove dirt and oil from rotor and from stator windings.

34. Keep motor clean and dry (see paragraph 9).

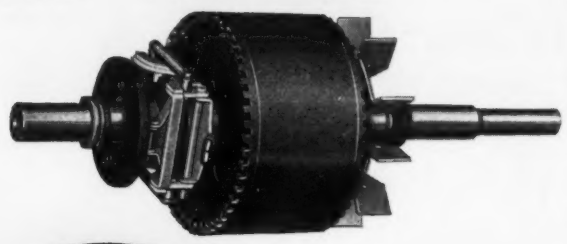
35. Calling in a service man once a year is good insurance against expensive repair bills due to neglect.

IF MOTOR HAS BURNED OUT

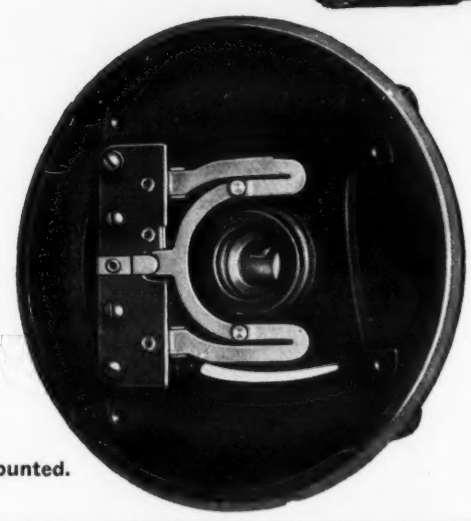
36. Call in competent service man. Before installing replacement motor, be sure to locate cause of burn out.

Details of Capacitor Motor Construction

Type CSH 1/6 hp. Capacitor Start Motor Cushion Mounted.



Above—Armature Showing Governor Mechanism.



Left—Cut-out Switch Mounted in End Bracket.

Appliances, Inc. Adds Gibson

COLUMBUS, Ohio — Appliances, Inc., 238 North Third St., will distribute the Gibson refrigerator line.

John Goebel To Represent Republic Electric Co.

DAVENPORT, Iowa — John G. Goebel has been made a traveling representative of Republic Electric Co., refrigeration supply jobber here, and will cover that company's territory in eastern Iowa and western Illinois.

Rotary Adds 23 New Replacement Seals

CHICAGO — Need of a wider range of replacement shaft-seals for compressors has led to the introduction of 23 new models by the Rotary Seal Co., according to W. W. Meyer, vice president of the firm.

The new units extend the applicability of the Rotary line to virtually every make of refrigeration compressor now in use, he said.

Service engineers who are acquainted with the unique design of the Rotary Seal replacement unit KF-1505 will be interested to know that this sealing principle has been adopted on all Rotary seals where compressor construction permits its use.

Besides this change, further refinements in design have been included in units for compressors originally equipped with slotted or undercut shafts. By using a sleeve gasket to the shaft shoulder by a Neoprene washer, Mr. Meyer explained, a new smooth surface is provided on which the seal is installed.

Fieldsteel Joins Staff Of Warren-Norge Co.

NEW YORK CITY—Jack Fieldsteel, for seven years apartment house sales manager of Bushwick-McPhilben, has been appointed sales manager of the apartment house and builders' division of Warren Norge Co., distributor of Norge appliances.

THE BUYER'S GUIDE

THE New 1939 PEERLESS CATALOGUE IS AVAILABLE

Consisting of 72 Pages and Many New Products.
Secure it From Your Local Authorized Peerless Jobber or From the Nearest Peerless Factory.

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Dallas Factory, 2218 N. Harwood St., Dallas, Texas
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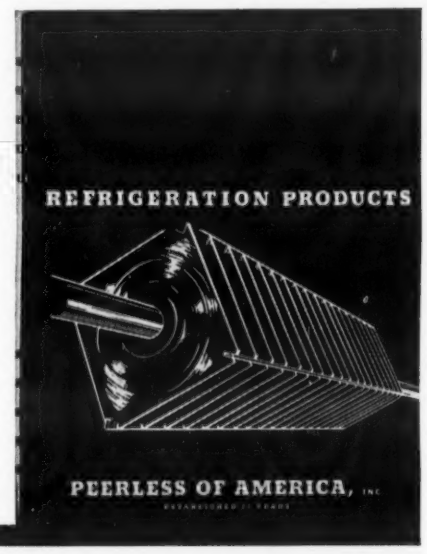
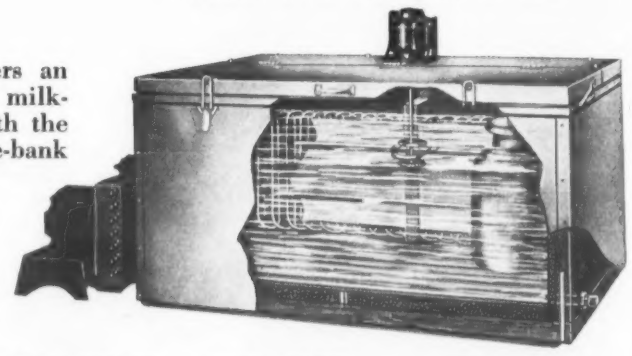


WILSON SYSTEMS OF MILK-COOLING

BUILD DEALER SALES because WILSON offers an exclusive LIFE-TESTED Cooler for every type of milk-cooling requirement. The VERTI-COIL cooler with the RAPID-COOLER AGITATOR uses the only efficient ice-bank method for extremely fast cooling of two milkings daily. The trouble-free agitator has one moving part, ball-bearing mounted. ALL WILSON CABINETS have a margin of reserve that means LONG LIFE with a MINIMUM of service and cost. GET THE FACTS about the WILSON SYSTEMS.

THIS SIX-CAN VERTI-COIL COOLER WITH RAPID-COOLER AGITATOR WILL COOL SIX CANS OF MILK NIGHT AND MORNING BELOW 50° IN ONE HOUR OR LESS



WRITE FOR DETAILS

WILSON CABINET CORP.

SMYRNA, DELAWARE

One of the Greatest Developements in RANCO'S History

Type "G"—All-Purpose Commercial Control

Air Conditioning

Bakery's Sales Show 15% Increase After Air-Conditioning System Is Installed

LOS ANGELES — Complete air conditioning, in which temperature and humidity are automatically controlled at all times, has been largely responsible for a 15% sales increase in the past year for Helms Olympic Bakeries, says Paul H. Helms, president and general manager of the company.

"Our business today is running $10,000 a week ahead of a year ago," says Mr. Helms. "Our increase is more than 15% ahead of last year, with only 5% more routes, and less advertising than at any time in the last five years. We can lay our increase to no single item but air conditioning."

The company has seized on every opportunity to dramatize the installation. More than 50,000 visitors were taken through the completely air-conditioned plant last year. A two-color newspaper advertisement played up the installation soon after its completion. For two straight months, all commercial announcements on the company's radio programs stressed the new conditioning system.

Handling of plant tours has been reduced to a definite system. As the visitor enters, he is given a 16-page booklet containing a complete description of each department. Departments and individual pieces of equipment are identified by signs posted throughout the plant.

Helms bakeries are an example of how air conditioning has created uniformity in production and quality, and has increased employe efficiency.

A uniform product, says Mr. Helms, has far more appeal to buyers than superior products which fluctuate in quality from day to day. Uniform control of all the ingredients in bakery products cannot be obtained without regulating air conditions in all processes, he believes. In the past, bakers have confined their efforts in air conditioning to the dough boxes, fermentation rooms, the proof boxes, and bread coolers.

EQUIPMENT INSTALLED

The installation consists of a 275-ton central station, water cooling air-conditioning system, with a York condensing system having two compressors operated by a 250-hp. synchronous motor, providing a highly flexible arrangement which will operate at 100%, 75%, 50%, and 25% capacity, thus permitting different parts of the system to operate independently.

The rest of the system consists of water cooler, dehumidifier, chilled water pump, sump pump, two condenser-water pumps, forced draft spray cooling tower, and booster fans, heaters, ducts, controls, etc. for each individual zone in the plant.

The air-conditioning system is split up into five zones as follows:

1. Private offices.
2. General offices.
3. Mezzanine floor of bakery.
4. Main floor of bakery.
5. Bread coolers.

The central dehumidifier supplies conditioned air to the first four zones, and chilled water lines for the central water cooling system carry refrigeration to the bread coolers.

Private and general offices are year-around air conditioned to maintain 75° F. and 50 to 55% relative humidity. The private offices are on a separate zone, because they have an outside exposure and consequently conditions vary more widely there. In all offices, conditioned air is introduced through ceiling outlets incorporated in the overhead lighting system.

BAKERY PROPER

The bakery proper consists of the receiving room, flour storage, pastry department, mixing room, bread department, cake department, oven space, bread loading and cake loading spaces—a total area of 97,500 sq. ft. where proper temperature and humidity control is most essential to uniform production.

This area is maintained at 80° F. and 50% relative humidity, and is handled as one zone, with complete air-distributing system, arranged for year-around air conditioning. The main heat load here is due to the traveling ovens, and is so great that exhaust fans have been installed to carry most of this heat to the outside of the building.

In winter these exhaust fans are shut off, and oven heat is recirculated to provide heating for the whole plant.

BREAD COOLING

In applying refrigeration to the bread cooling system, York engineers found that they had little industry experience to work with. Bread cooling has often been a hit-or-miss proposition, with the bread being stored on racks, subject to room temperatures up to 100° F. at a wide range of humidities. In addition, variable currents throughout the racks made uniform cooling impossible.

Helms bakeries found that bread wrapped before proper cooling is apt to mould, and also that high humidity during cooling had a decided effect on the softness of the bread. Helms had previously installed an air washer to serve the bread cooler, but at times abnormal outside humidities would often raise the humidity in the cooler to a point where soft bread resulted.

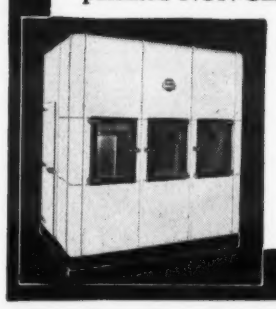
(*Concluded on Page 17, Column 3*)

TYLER The Original WELDED STEEL Commercial Refrigerators

TYLER Treasure Island SALES FIXTURES

NEW 1939 FEATURES

Tyler's original welded steel construction is still the most advanced in the commercial refrigeration field. And the 1939 line is the greatest ever. New improvements include wider doors, for greater accessibility; wider front glass for increased visibility and new, patented NON-GLARE lighting system for brighter display.



THE BIG VALUE LINE

Complete line covers wide field. Built from experience with thousands of installations. Offers sensational values because of standardized quantity production. You can meet today's demands with Tylers and make more money. Write NOW for dealer proposition.

New York Office: 601 W. 26th St.
Boston Office: 683 Beacon St.
Chicago Office: 1663 W. Ogden Ave.

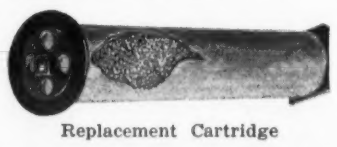
TYLER FIXTURE CORP. Dept. R, NILES, MICH.

AMINCO DEHYDRATORS

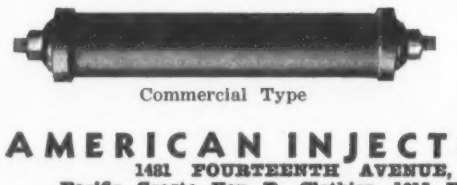
A feature of Aminco Dehydrators is the use of female pipe threads which permit the use of any needed size S.A.E. connection.

There is no longer any need to carry a large stock of various size dehydrators. A limited range will supply any demand.

Service Type—Refillable



Replacement Cartridge



Commercial Type

Aminco Dehydrators both Service and Commercial types, are available for 1—15 ton capacity, in Cartridge Fill, Loose Fill and Non-Refillable units.

Activated Alumina is standard fill, calcium chloride, calcium oxide or Zinc Moss supplied on order at same price.

Send for Complete Details

AMERICAN INJECTOR COMPANY
1481 FOURTEENTH AVENUE, DETROIT, MICH.
Pacific Coast: Van D. Clothier, 1015 E. 16th, Los Angeles, Calif.

NOW 8 BIG WAREHOUSES TO SERVE YOU

Complete stocks of Air Conditioning and Refrigeration Parts and Supplies. Write for catalog on your letterhead.

THE HARRY ALTER CO.
1728 S. Michigan Avenue, Chicago, Illinois
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Number of Installations By Types of Business Shown In Surveys

Editor's Note: The NEWS continues in this issue the publication of surveys showing the number of air-conditioning installations made in the chief population centers of the country for 1938 and years preceding. Cooperation of operating power companies materially aided the obtaining of these surveys.

The surveys break down the totals by the type of establishment in which the installation was made, showing the number of installations and total horsepower. Four groupings make up the surveys: (1) all installations made prior to 1937; (2) installations made during 1937; (3) installations made in 1938; and (4) grand total for all years.

Also in this issue is the complete record of the air-conditioning installations made during 1938 in San Antonio, Tex.

New Orleans, La.

(Data Supplied by the New Orleans Public Service, Inc.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total* No.	Total* Hp.
Airports	1	105	0	0	0	0	1	105.00
Beauty Shops	2	8.25	0	0	0	0	2	8.25
Broker Rooms	3	63.88	0	0	0	0	3	63.88
Cake Mfg.	1	12	0	0	0	0	1	12.00
Candy Mfg.	2	83.5	1	20.0	0	0	3	103.50
Children's Wear	1	5.5	0	0	0	0	1	5.5
Cigar Mfg.	2	2	0	0	0	0	2	2.0
Clothing Stores	7	379	1	30.0	14	92.25	22	501.25
Colleges	2	4.25	0	0	0	0	2	4.25
Court Rooms & Civic Bldgs.	1	55	0	0	1	1,275.0	2	1,330.00
Department Stores	7	2,262.3	2	370.0	2	128.0	11	2,760.3
Drug Stores	4	84.82	5	60.25	1	6.0	10	151.07
Funeral Homes	2	55.3	0	0	3	50.0	5	105.3
General Offices	16	179.85	13	163.25	12	118.25	41	461.35
Hospitals	3	39.5	1	1.5	2	2.00	6	43.0
Hotels	13	732.25	2	59.5	10	277.75	25	1,069.0
Laboratories	2	43.5	0	0	0	0	2	43.5
Night Clubs	2	75	1	10.75	2	29.00	5	144.75
Office Bldgs.	3	1,869	0	0	2	3,285.0	5	5,145.0
Pecan Dryers	2	1.5	0	0	0	0	2	1.5
Printing Establishments	2	4.9	2	30.75	0	0	4	35.65
Private Offices	38	35.7	37	85.75	10	12	85	133.45
Radio Studios	2	26.5	0	0	0	0	2	26.5
Residences	78	217.07	42	44.5	42	75.80	162	337.37
Restaurants	11	338	7	52.0	9	55.75	27	445.75
Seed Storage	1	16	0	0	0	0	1	16.0
Shoe Stores	8	95.25	1	9.00	1	8.25	10	112.50
Stores (Miscellaneous)	1	117.0	1	70.0	8	68.25	10	250.25
Sugar Storage	1	1	0	0	0	0	1	1.0
Telephone Exchange	2	6	7	71.5	0	0	9	77.5
Theaters	6	1,551	3	147.5	1	20	10	1,718.5
Utilities	1	4.5	0	0	0	0	1	4.5
Women's Apparel	12	268.5	5	24.5	0	0	17	293.0
Railroads	5	380.0	0	0	0	0	5	380.00
Doctors & Dentists	0	0	0	0	8	8	8	8.0
Churches	0	0	0	0	1	1.00	1	1.0
Totals	**244**	**9,122.82**	**131**	**1,250.75**	**127**	**5,512.30**	**502**	***15,885.87**

*Company's latest figures give additional installation for '36 and '37, making total 526 installations and 16,523.47 total hp.

Des Moines, Iowa

(Data Supplied by the Des Moines Electric Light Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total No.	Total Hp.
Banks	2	59.0	1	50.66	0	0.0	3	109.66
Barber & Beauty Shops	4	10.0	6	23.87	1	0.25	11	34.12
Building Lobbies	1	1.0	0	0.0	1	11.5	2	12.5
Dance Studio	0	0.0	0	0.0	1	0.5	1	0.5
Funeral Homes	5	42.3	1	3.25	0	0.0	7	51.5
Hospitals	6	47.8	1	0.75	1	0.5	5	18.58
Hotel Dining Rooms	8	207.0	0	0.0	1	17.0	9	224.0
Hotel Guest Rooms	0	0.0	0	0.0	1	39.0	1	39.0
Industrial	5	42.6	0	0.0	0	0.0	5	42.6
Office Buildings (also additional equipment)	1	243.84	3	951.5	2	44.0	6	1,239.33
Offices (general)	11	82.62	12	210.93	8	117.75	31	411.3
Offices (private)	24	25.65	22	16.91	12	7.82	58	50.38
Radio Studios	2	43.8	1	15.75	0	0.0	3	59.55
Railway Yard	1	80.0	0	0.0	0	0.0	1	80.0
Residences	31	24.03	21	34.23	14	17.82	66	100.38
Restaurants	23	276.1	9	38.18	11	32.98	43	343.71
Sports Clubs	2	7.0	3	48.5	0	0.0	5	55.5
Department Store	1	1,111.0	0	0.0	0	0.0	1	1,111.0
Ladies Apparel Stores	4	67.3	5	116.4	1	0.75	10	184.45
Clothing Stores	2	95.5	1	58.0	4	113.66	7	267.16
Drug Stores	1	61.5	1	17.5	3	12.3	5	91.3
Fur Stores	1	1.5	2	17.5	0	0.0	3	19.0
Other Stores	9	342.6	5	21.68	3	13.93	17	378.21
Theaters	12	539.75	3	148.0	1	6.0	16	693.75
Total	**144**	**3,407.66**	**97**	**1,773.61**	**65**	**435.76**	**316**	**5,617.03**

Louisville, Ky.

(Data Supplied by the Louisville Gas & Electric Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total No.	Total Hp.
Theaters	9	671.0	5	162.5	3	65.0	17	898.5
Industrial	13	438.0	0	0.0	5	14.0	18	452.0
Stores	37	709.48	22	649.66	14	162.74	73	1,521.88
Restaurants	7	124.0	5	83.99	7	56.59	19	264.58
Offices	18	59.1	31	297.72	7	43.3	56	400.12
Residences	16	37.33	16	33.12	3	11.01	35	81.46
Photo Engraving	1	15.0	0	0.0	0	0.0	1	15.0
Hotels	3	18.5	1	7.5	0	0.0	4	26.0
Hotel Restaurants	5	77.5	0	0.0	0	0.0	5	77.5
Tap Room	1	5.0	0	0.0	0	0.0	1	5.0
Radio Studio	1	6.0	0	0.0	0	0.0	1	6.0
Miscellaneous	14	413.5	8	251.8	0	0.0	22	665.3
Beauty Parlor	0	0.0	1	9.25	0	0.0	1	9.25
Funeral Homes	0	0.0	0	0.0	7	48.5	7	48.5
Banks	0	0.0	0	0.0	2	18.0	2	18.0
Doctors' Offices	0	0.0	0	0.0	6	7.0	6	7.0
Hospitals	0	0.0	0	0.0	5	49.0	5	49.0
Total	**125**	**2,574.41**	**89**	**1,494.54**	**59**	**477.13**	**273**	**4,547.08**

Air Conditioning

Michigan (Outside of Detroit)

(Data Furnished by Consumers Power Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total No.	Total Hp.
Industrial	9	186	5	55	4	96.25	18	337.25
Theaters	15	880	30	557	4	87.5	49	1,524.50
Hotels	7	64.5	1	15	0	0	8	79.50
Restaurants	17	178.5	12	95.4	13	34.2	42	308.10
Drug Stores	3	55	6	44	10	65.1	19	164.10
Test Booths	1	1.5	0	0	0	0	1	1.5
Funeral Homes	5	32.75	0	0	4	18.45	9	51.20
Offices	44	627.35	14	107.15	16	102.70	74	837.20
Jewelry Stores	2	9	2	16.75	1	12.00	5	37.75
Stores	12	311	23	344.7	14	189.8	49	845.50
Department Stores	1	140	2	266	0	0	3	406.60
Banks	2	4.25	2	12.75	1	1.3	5	18.30
Tap Rooms	1	30	1	3.33	1	5.3	3	38.63
Beauty Parlors	1	3	2	13.8	2	5.6	5	22.40
Dark Rooms	1	.75	0	0	0	0	1	.75
Residences	17	18.25	6	14.55	1	15.0	24	47.80
Sanitarium & Hospitals	1	68	0	0	3	42.6	4	110.6
Laboratories	1	7	1	47.5	2	6.9	4	61.4
Physicians' Offices	1	.5	1	1.7	1	.3	3	2.5
Furriers	1	.5	1	5.2	0	0	2	5.7
Church	1	30	0	0	0	0	1	30.0
Miscellaneous	0	0	3	103	4	22.35	7	125.35
Total	**143**	**2,647.85**	**115**	**1,951.10**	**81**	**724.15**	**339**	**5,323.10**

Charleston, S. C.

(Data Compiled by South Carolina Power Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total No.	Total Hp.
Retail Stores	4	327	4	9.25	1	94	9	430.25
Restaurants	1	13	1	9	0	0	2	22
Department Store	0	0	1	93	0	0	1	93
Utility Company	0	0	1	20.75	1	58.50	2	79.25
Residential	0	0	2	7.75	0	0	2	7.75
Hotel (including Dining Room)	1	10	0	0	0	0	1	10
Commercial Offices	0	0	4	6	1	15	5	21
Bowling & Billiard Hall	0	0	1	25	0	0	1	25
Totals	**6**	**350**	**14**	**170.50**	**3**	**167.50**	**23**	**688.25**

Reno, Nev.

(Data Compiled by Sierra Pacific Power Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total No.	Total Hp.
Banks	1	15	1	20	0	0	2	35
Clubs	2	40	4	40	2	17.25	8	97.25
Law Office	0	0	1	2	1	2	2	4
Millinery Shop	0	0	1	5	0	0	1	5
Offices	0	0	1	1	0	0	1	1
Private Homes	0	0	1	4	2	4	3	8
Retail Stores	0	0	1	1	4	48	5	49
Restaurants	3	13	0	0	0	0	3	13
Theaters	2	110	0	0	0	0	2	110
Total	**8**	**178**	**10**	**73**	**9**	**71.25**	**27**	**322.25**

Savannah, Ga.

(Data Compiled by Savannah Electric & Power Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total No.	Total Hp.
Bank Bldg.	1	56	0	0	0	0	1	56
Barber Shops	1	3.5	0	0	1	3.25	2	6.75
Bus Terminal	0	0	0	0	1	24.5	1	24.5
Drug Stores	0	0	1	18.75	2	15	3	33.75
Hospital	0	0	0	0	1	22	1	22
Hotel Tap Room	1	11.5	0	0	0	0	1	11.5
Jewelry Stores	1	11	0	0	2	20.75	3	31.75
Night Clubs	2	63	0	0	0	0	2	63
Offices	1	.75	1	2.75	1	3.25	3	6.75
Office Bldg.	1	28	0	0	0	0	1	28
Residences	2	7	4	16	1	3.25	7	26.25
Restaurants	2	38	2	49.5	1	5.5	5	93
Stores—Clothing	0	0	2	36	0	0	2	36
Stores—5¢ & 10¢	0	0	0	0	2	183.5	2	183.5
Theater	1	188.5	0	0	0	0	1	188.5
Women's Shops	2	17.75	2	20.25	3	16.16	7	54.16
Undertaking Parlors	0	0	0	0	1	9.5	1	9.5
Total	**15**	**425**	**12**	**143.25**	**16**	**306.66**	**43**	**874.91**

Toledo, Ohio

(Data Supplied by the Toledo Edison Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total No.	Total Hp.
Banks	1	268.0	0	0.0	1	28.0	2	296.0
Barber Shop	1	3.0	0	0.0	0	0.0	1	3.0
Factories	8	412.0	8	199.0	1	10.0	17	621.0
Funeral Homes	9	64.0	1	6.0	2	5.0	12	75.0
Hotels	4	184.0	2	24.0	1	30.0	7	238.0
Offices	20	174.0	6	60.0	10	16.0	36	250.0
Residences	14	23.0	10	35.0	11	15.0	35	73.0
Restaurants	13	250.0	6	47.0	3	25.0	22	322.0
Stores	18	561.0	5	37.0	11	107.0	34	705.0
Theaters	7	1,207.0	1	21.0	0	0.0	8	1,228.0
Miscellaneous	3	18.0	1	3.0	0	0.0	4	21.0
Doctors' & Dentists' Offices	0	0.0	0	0.0	4	3.0	4	3.0
Total	**98**	**3,164.0**	**40**	**432.0**	**44**	**239.0**	**182**	**3,835.0**

Cincinnati, Ohio

(Data Compiled by Cincinnati Gas & Electric Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	During 1937 No.	During 1937 Hp.	During 1938 No.	During 1938 Hp.	Total No.	Total Hp.
Residences	141	210.5	76	102.25	48	43.75	265	356.5
Offices	116	1,512.5	62	521.5	50	566.5	228	2,600.5
Small Stores	45	532.25	16	101.25	16	93.58	77	727.08
Large Stores	9	2,006.0	7	914.0	2	213.0	18	3,133.0
Restaurants	51	1,082.0	12	743.0	4	23.25	67	1,848.25
Theaters	24	2,408.0	7	188.0	6	186.0	37	2,782.0
Miscellaneous	31	1,928.0	8	393.5	21	496.75	60	2,818.25
Total	**417**	**9,679.25**	**188**	**2,963.5**	**147**	**1,622.83**	**752**	**14,265.58**

Humidity Control Solves Important Problems For Coast Bakery

(Concluded from Page 16, Column 3)

With the addition of chilled water to the washer and certain changes in its design, York engineers were able to maintain the proper temperature and humidity conditions for cooling bread, and cut down on the amount of outside air used.

The bread wrapping mezzanine at Helms is completely air conditioned, with year-around control. The same conditions must be maintained here as in the bread cooler. This prevents any change in temperature or humidity which might affect the bread inside the wrapper. Air is supplied by overhead ducts on the side walls, blowing toward the center.

BEST ANSWER

Has the Helms bakery installation justified itself? Best answer to this question comes from Mr. Helms himself, who says:

"In the first place, we have absolute control of the humidity in our shop, which is a great help indeed, because the relative humidity in any bake shop varies considerably—not only with the outside temperature and daily air conditions, but also with the volume of merchandise manufactured.

"We control our humidity, dropping it so the merchandise does not sweat, and so that bread and rolls keep a crisp crust, and we find that having this humidity control, not only of our fermentation room, and proof-case, but the shop itself including the bread cooler, is a Godsend to our manufacturing problem.

'GREATEST BENEFIT'

"One of the greatest benefits we have is the absolute uniform cooling of our bread, regardless of outside conditions, which can only be accomplished with refrigeration. Depending on the cooling from the water sprays alone is not enough. This past summer we had scarcely one complaint of bread mould, and some days were very hot and humid.

"As I look back on it now, I would make this entire investment for the better employe relationship. We have the happiest baking crew I have ever seen in my 25 years of baking experience. In addition, the efficiency of our people has increased about 10%, as closely as we can figure.

"Air conditioning has gone a long way in insuring cleanliness in our plant—dust is taken out of the air, and the air is cleansed and re-circulated. We find it much easier to keep our shop clean. Dust is not even found in our flour sifting room.

LIKE OTHER INGREDIENTS

"The air in our bakery, because of air conditioning, is handled just like any other ingredient that goes into the manufacturing of our products. We have a man that checks conditions in all parts of the shop, who makes an hourly trip, marking down the temperature and humidity.

"Our wrapping department, where we have five electrically heated wrapping machines, is ideal. We have no heat—we have no trouble sealing paper—we practically never have rewraps, which saves time and paper.

"One of the greatest advertising features we have is the air-conditioning in our bakery.

"Our business today is running $10,000 a week ahead of a year ago. Our increase is over 15% ahead of a year ago, with only 5% more routes. We can lay our increase to no single item but air conditioning."

Conditioning Gives Relief To Asthma Sufferers

MAUI, Hawaii—A special air-conditioning system with filters to remove pollen is giving relief now to asthma sufferers in Hawaii.

The Puunene hospital here has solved a problem of long standing on the island by air conditioning its asthma ward as well as the operating room and private rooms. Special filters placed at the air intake to remove pollen keep the patients free from outside sources of irritation.

The refrigeration capacity of the Carrier air-conditioning system is sufficient for all the area involved. Heating is provided as well. Well water is used for condensing water.

Camera Shop Business Improved By Cooling

DALLAS, Tex.—Employe efficiency as well as customer comfort has been increased by the air-conditioning installation in the Thurman Randle Co., camera and sporting goods shop here.

This store, whch operates a film finishing service in addition to its regular sales department, has found that it can turn out better work, especially in the heat of mid-summer, than was possible before the cooling system was installed. Loss due to deterioration has been reduced to a minimum, and the employes, under the more comfortable conditions, can work more speedily and efficiently.

This firm has built up a large volume of trade-in movie equipment and accessories, and has provided a small projection room for patrons who wish to see their films as soon as possible after the processing has been completed. The store's air-conditioning system keeps this room at ideal temperature throughout the summer, and is largely responsible, the management believes, for the popularity which the store enjoys among the city's movie addicts.

Seyfer Moves To Increase Space For Conditioning

DECATUR, Ill.—W. F. Seyfer & Son, dealer in air-conditioning equipment, furnaces, and general sheet metal work, has moved from 222 N. Main St. to larger quarters at 245 E. Main St. The change in location was needed for increased space.

Concord Hardware Appointed Airtemp Distributor

CONCORD, N. H.—Concord Hardware & Plumbing Supply Co. has been appointed distributor for Chrysler's Airtemp air conditioning.

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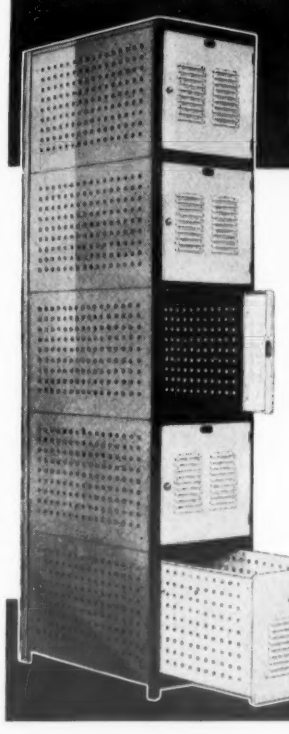

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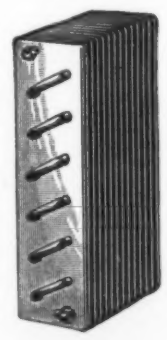

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Air Conditioning

Govt. Specifications For Room Coolers May Serve as Guide Post For Dealers

Editor's Note: The complete text of the U. S. government specifications for portable room-type air conditioners is published not because a great many readers may be bidding on a government job, but for the reason that the specifications set up might be used as a guide post for distributors or dealers who contemplate taking on a line of such equipment. While government requirements may be considered too rigid by some, the performance standards set forth should constitute worthwhile information which dealers, contractors, and engineers may find both interesting and useful.

This specification was approved on the above date by the Director of Procurement, for the use of all departments and establishments of the Government, and shall become effective not later than March 1, 1939. It may be put into effect, however, at any earlier date after promulgation.

A. APPLICABLE SPECIFICATIONS

A-1. There are no other Federal Specifications applicable to this specification.

A-2. Underwriters' Laboratories, Inc., Standard for Unit Refrigerating Systems, June, 1937.

A-2a. The bidder shall submit to the purchasing agency proof that the appliance he proposes to furnish under this specification conforms to the standards of the Underwriters' Laboratories in regard to fire and casualty hazards.

A-2b. The label of the Underwriters' Laboratories will be accepted as proof that the device conforms to this requirement.

A-2c. In lieu of the label, the bidder may submit independent proof satisfactory to the purchasing agent that the appliance he proposes to furnish conforms to the published standards of the Underwriters' Laboratories.

A-2d. Compliance with the above preliminary requirements regarding fire and casualty hazards does not absolve the bidder from compliance with the other requirements of this specification.

B. TYPES AND SIZES

B-1. *Types.*—The air-conditioning units covered by this specification shall be either air cooled or water cooled, as specified in the invitation for bids.

NOTE.—The terms air cooled and water cooled refer to the medium used to cool the condenser of the refrigerating machine that is a part of such air-conditioning units.

B-2. *Sizes.*—These specifications cover units having specified cooling capacities in the range from 5,000 to 12,000 B.t.u. per hour. The specified capacity is that called for in the invitation for bids and the actual capacity is the maximum capacity of the unit under the arbitrary test conditions defined in paragraph D-3. The actual capacity shall not be less than the specified capacity but may be greater.,

C. MATERIAL AND WORKMANSHIP

C-1. *Material.*—The materials used in the construction of the units shall be of good commercial quality and shall be suitable for the purposes for which they are used.

C-2. *Workmanship.*—Workmanship shall be first class.

D. GENERAL REQUIREMENTS

D-1. *Design and construction.*—

D-1a. An air-conditioning unit covered by this specification shall consist of an electric motor driven refrigerating machine with necessary fans or blowers and essential auxiliaries enclosed in a suitable cabinet, and window ducts when necessary.

D-1b. The unit shall be removable from the room if the air ducts and/or water connections are disconnected. The installation shall be such that if the unit is removed, the building shall be left in its original condition except for the water service pipes.

D-2. *Cabinets and ducts.*—

D-2a. The design and finish of the cabinet shall be such as to make it appropriate for installation in a well-furnished office.

D-2b. Window ducts shall harmonize in design and finish with the cabinet. Suitable means shall be employed to prevent damage to the machine of building due to rain entering through or around the ducts.

D-3. *Cooling capacity.*—

D-3a. Air-cooled units shall have capacities not less than specified in the invitation for bids when the air conditions are, outside 95° DB; 75° WB; room 80° DB; 67° WB; and when the fresh air introduced for ventilating and the recirculated air amount to not less than 6 CFM and 20 CFM respectively for each thousand B.t.u. per hours of required capacity.

D-3b. Water-cooled units which are required to introduce outside air to the room for ventilation shall perform as above and the water rate shall not exceed 12 gallons per hour per thousand B.t.u. of actual capacity, when the water is supplied at 80° F.

D-3c. Water-cooled units which are not required to introduce outside air to the room shall develop their required capacity under the above room conditions when supplied with water at 80° F. at a rate not exceeding 10 gallons per hour per thousand B.t.u. of actual capacity. Such units shall recirculate not less than 26 CFM of room air per thousand B.t.u. of required capacity.

D-4. *Ventilation.*—

D-4a. Air-cooled units shall be capable of introducing into the room for ventilation not less than 6 CFM of outside air per thousand B.t.u. per hour of required capacity.

D-4b. Water-cooled units which are required to introduce outside air into the room for ventilation shall be capable of introducing not less than 6 CFM per thousand B.t.u. per hour of required capacity.

D-4c. Outside air introduced by either type unit shall be filtered and shall be cooled either by passing through a cooling coil or by mixing with recirculated air before introduction into the room.

D-4d. If provision for regulating the amount of air introduced for ventilation is specified in the invitation for bids, means shall be provided for regulating the amount of air introduced to any amount less than the maximum.

D-5. *Filters.*—

D-5a. All air introduced from outside shall pass through a suitable filter before introduction into the room.

D-6. *Condensate disposal.*—

D-6a. Water condensed on the cooling coils of air-cooled units shall be completely evaporated in the condenser cooling air stream and discharged outside as vapor.

D-6b. Water condensed on the cooling coils of water cooled units shall be automatically discharged to the drain.

D-7. *Control.*—

D-7a. The controls shall be arranged so that the circulating fan can be operated when the compressor is not operating. The controls shall be provided with such interlocks as may be necessary to prevent incorrect operation.

D-8. *Refrigerant.*—

D-8a. The refrigerant shall be one of the following compounds:

Dichlorodifluoromethane	CCl_2F_2
Dichloromethane	CH_2Cl_2
Trichloromonofluoromethane	CCl_3F
Dichlorotetrafluoroethane	$C_2Cl_2F_4$

D-9. *Noise.*—

D-9a. The loudness level due to the unit at any point in the room in which the unit is installed shall not exceed an equivalent loudness of 50 decibels above the zero level of 10-16 watts per square centimeter except at distances less than 5 feet from the unit. The equivalent loudness shall be measured by a sound meter conforming to the Tentative American Standard for sound level meters. The 40 decibel network shall be used.

D-10. *Accessories.*—Exposed supports and accessories such as air ducts shall be of a kind and finish to harmonize with the design and finish of the cabinet.

D-11. *Marking.*—The "on" and "off" positions of the control switches shall be marked or distinctly indicated.

D-12. *Water supply and connections.*—

D-12a. Water-cooled units shall have connections for supply and waste pipes of a standard size.

D-12b. Unless otherwise specified, water-cooled units shall operate satisfactorily when connected to a water system with a range in pressure from 15 to 60 pounds per square inch.

D-12c. Water-cooled condensers shall have strainers and automatic water regulating valves in the water supply lines to be operated by condenser pressure or electrically in accordance with the requirements of the condensers.

D-13. *Power requirements.*—

D-13a. Under the conditions specified in paragraph D-3, the total power input of a unit shall not exceed the smaller of the values calculated from the following formulae:

Air cooled units,

Maximum watts=0.17×specified capacity+120 or

Maximum watts=0.15×actual capacity+120

Water cooled units,

Maximum watts=0.15×specified capacity+120 or

Maximum watts=0.13×actual capacity+120.

Example.—If an air-cooled unit having a specified capacity of 7,000 B.t.u. per hour is ordered, the watts input shall not exceed

7,000×0.17+120=1,310 watts

If the unit under the test conditions defined in paragraph D-3 above is found to have an actual capacity of

(Concluded on Page 19, Column 1)

Where Air-Conditioning Systems Were Installed In San Antonio In 1938

Name	Manufacturer	Hp.
Department Stores		
Wolff & Marx Co.	Frick	508
Fomby Clothing Co.	York	13
Carlette's	York	5.5
S. A. Trunk Co.	Frigidaire	13
S. H. Kress & Co.	Carrier	231
Tru-Value Dress Shop	Carrier	5.5
D. L. Pincus, Inc.	Carrier	31
Stein Brothers	Carrier	5.5
Dundee Clothiers	Carrier	5.5
Larry's Clothes	Carrier	3.5
Fox Co.	Carrier	5.5
Sears-Roebuck Co.	Carrier	300
Three Sisters Dress Shop	Carrier	12.5
Testing Laboratories		
Crockett Laboratories	Frick	2
U. S. Arsenal	Frigidaire	2
Hospital		
Government Hospital	York	95
Radio Broadcasting Station		
WOAI	York	55
Restaurants, Coffee Shops, and Cafeterias		
Blue Bonnet Coffee Shop	York	20.5
Earl Abel	Frigidaire	5.5
Rainbow Grille	Carrier	5
Triple XXX	Carrier	5.5
Residences		
R. M. Willis	York	1
Dr. F. P. Herff	York	6.5
C. G. Benham	Westinghouse	.5
Harper Macfarlane	Westinghouse	.5
Knox Miller	Westinghouse	.5
Mr. King	Westinghouse	.5
H. L. Blackstock	Frigidaire	15
H. Lutcher Brown	Frigidaire	27
J. L. Brown	Frigidaire	1
Cruz Lozano	Frigidaire	.75
Jack Guggenheim	Frigidaire	.75
Jack A. Brosseau	Frigidaire	.75
Ernest Clemens	Frigidaire	.75
Mrs. F. G. Oppenheimer	Frigidaire	.75
H. L. Gazley	Frigidaire	1.5
G. A. C. Halff	Frigidaire	6.5
Dr. G. A. Pagenstecker	Frigidaire	.75
Martin Wright	Carrier	.75
Century Home Builders	General Electric	3.5
J. H. Rodes	Coolair	.75
LeBarren Apartments	Carrier	6
Individual Offices		
Seven-Up Co.	York	2.5
C. E. Wilson Co.	Westinghouse	4.25
S. G. Nelson	Westinghouse	.5
Clymore Properties	Frigidaire	3
Leo Brewer	Frigidaire	1
Our Lady of the Lake College	Carrier	.75
Office Buildings		
First Federal Savings	Westinghouse	10
S. A. Bldg. & Loan Ass'n.	Carrier	38
Florist		
Huffmeyer Florist	Westinghouse	4.25
Drug Store		
Laurel Heights Pharmacy	Frigidaire	12.5
Church		
First Baptist Church	Carrier	6

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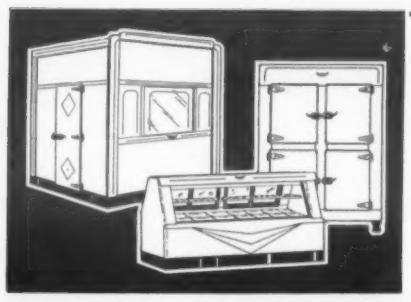

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JACKSON, MICHIGAN

What U. S. Demands In Performance & Construction Of Room Coolers Shown In Specifications

(*Concluded from Page 18, Column 5*)

8,250 B.t.u. per hour, the watts input also shall not exceed

8,250×0.15+120=1,358 watts

The watts input shall not exceed the smaller of these values or 1,310 watts whatever the actual capacity.

E. DETAIL REQUIREMENTS

E-1. See section D, general requirements.

F. METHOD OF SAMPLING, INSPECTION, AND TESTS

F-1. *Inspection and tests.*—

F-1a. Tests or inspection of the units, if required, shall be conducted at the manufacturers' works.

F-1b. If tests are required, at least one unit of each size and type on each contract shall be tested as specified in paragraph F-1c.

F-1c. For test, air-cooled units shall be installed in a space in which the wet and dry-bulb temperatures are maintained at 67° F. and 80° F. respectively. The air supplied to the machine for condenser cooling and for room ventilation should be at 95° F. dry bulb and 75° F. wet bulb. The capacity of the unit shall be calculated from the volume of air passing over the evaporator and the change in the temperature and moisture content of this air. The power consumption shall be measured when the machine is operating under this condition.

F-1d. For test, water-cooled units shall be installed in a space in which the wet and dry-bulb temperatures are maintained at 67° F. and 80° F., respectively. The units shall be supplied with cooling water at 80° F. and with air for ventilating the room, if required, at 95° F. dry bulb and 75° F. wet bulb. The capacity of the unit shall be calculated from the volume of the air passing over the cooling coil and from the change in the temperature and moisture content of this air. The power and water consumption shall be measured when the machine is operating under this condition.

F-2. *Information to be supplied in lieu of tests.*—

F-2a. If factory tests are waived in the invitation for bids the bidder shall submit test data with his bid.

F-2b. *Manufacturer's test data.*—The following test data shall be certified by the manufacturer if required under F-2a.

Air-conditioning unit, model No.

Air condition in the air conditioned space where the tests were made.

Temperature of the air used to cool the condenser, for air-cooled units.

Power input to units, in watts.

Temperature and quantity (G.P.H.) of water used to cool the condenser, for water-cooled units.

Total cooling effect (B.t.u./hr.).

Amount of air recirculated in the air-conditioned space.

Wet and dry-bulb temperatures of the recirculated air before and after passing through the unit.

Amount of fresh air introduced for ventilation.

Temperature of electrical equipment as provided by applicable specifications.

G. PACKAGING, PACKING, AND MARKING FOR SHIPMENT

G-1. *Packaging.*—Unless otherwise specified, commercial packaging is acceptable under this specification.

G-2. *Packing.*—Unless otherwise specified, the subject commodity shall be delivered in substantial wooden crates or boxes so constructed as to insure safe delivery by common or other carriers to the point of delivery at the lowest rate. The unit shall be rigidly packed inside container so as to prevent damage in shifting while being handled. Not more than one unit shall be packed in a single container.

G-3. *Marking.*— Unless otherwise specified, shipping containers shall be marked with the name of the article, the type, size, and the quantity contained therein, as defined by the contract or order under which the shipment is made, the name of the contractor, the number of the contract or order, and the gross weight.

H. REQUIREMENTS APPLICABLE TO INDIVIDUAL DEPARTMENTS

H-1. The following departmental specifications of the issue in effect on date of invitation for bids shall respectively form a part of this specification, insofar as the activities noted are concerned:

H-1a. *Army:* U. S. Army Specification No. 100-2, Standard Specification for Marking Shipments.

H-2. For administrative reasons, Navy Department purchases for use aboard ship will be made under the issue, in effects on date of invitation for bids, of Bureau of Engineering Supplementary General Specifications for Machinery, SGS (59)-120, copies of which may be obtained only upon application to the Bureau of Engineering, Navy Department, Washington, D. C.

H-2a. Navy Department purchases will be made subject to General Specifications for Inspection of Material, copies of which may be obtained without cost upon application to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.

I. NOTES

I-1. *Bid requests.*—When requesting bids for air-conditioning units for room cooling, the following information should be specified as applicable.

(a) Type (I, air-cooled, II, water-cooled).

(b) Minimum Capacity (B.t.u. per hour).

(c) Voltage and kind of current. (If alternating current, frequency and number of phases).

(d) If the units are water cooled, whether outside air is to be supplied by the unit.

(e) Whether means for controlling the supply of outside air are to be provided.

(f) Any limitations on cabinet dimensions necessitated by the space available.

(g) Any special requirements concerning finish.

(h) If factory tests are to be made, method of selection of test specimens and provision of Government test observers.

(i) Whether factory tests are to be waived.

(j) Whether the units shall be installed complete and put in satisfactory operation by the bidder, including instruction of personnel in method of operation, or delivered otherwise.

(k) Service guarantee covering defective material or workmanship, and period of free service (12 months suggested).

I-2. *Estimated requirements.*—In the absence of a detailed calculation of the cooling capacity needed to maintain desired conditions in the space to be cooled, the cooling capacity required for office spaces of ordinary construction may be approximated by allowing from 2 to 3 B.t.u. per hour of capacity for each cubic foot of space to be cooled.

I-3. It is believed that this specification adequately describes the characteristics necessary to secure the desired material and that normally no samples will be necessary prior to award to determine compliance with this specification. If for any particular purpose samples with bids are necessary, they should be specifically asked for in the invitation for bids, and the particular purpose to be served by the bid sample should be definitely stated, the specification to apply in all other respects.

I-4. This specification covers only the types, classes, grades, sizes, etc., of the commodity as generally purchased by the Federal Government, and is not intended to include all of the types, etc., which are commercially available.

I-5. An index of Federal Specifications may be purchased as noted in the paragraph next below; price to be obtained from the Superintendent of Documents.

I-6. Copies of this specification may be obtained upon application accompanied by money order, or coupon, or cash, to the Superintendent of Documents, Government Printing Office, Washington, D. C., price 5 cents.

Notice—When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation or conveying any rights or permission to manufacture, use, or sell, any patented invention that may in any way be related thereto.

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REFRIGERATING ENGINEER to specialize in the design of a complete range of beverage and water cooling lowsides by a nationally known refrigeration manufacturer. A man now employed in this work is preferred. The submission of your qualifications will be kept confidential. Box 1123, Air Conditioning & Refrigeration News.

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REPRESENTATIVES WANTED

MANUFACTURER'S REPRESENTATIVE wanted by old established corporation for midwest territory. Product nationally advertised and sold to manufacturers, distributors and dealers. Applicants must be between 28 and 50 and have background of experience in commercial appliances. Straight commission; protected territory. Car needed. Address PELCO, Bloomington, Illinois.

WANTED: FACTORY Representatives in U. S. and Canada to sell refrigeration supply jobbers on commission basis. THAWZONE "A," liquid dehydrator and acid neutralizer, in use commercially two years. Efficiency thoroughly proved. Desire representatives already established and calling upon jobbers in their territory. HIGHSIDE CHEMICALS CO., 195 Verona Ave., Newark, New Jersey.

MANUFACTURER'S REPRESENTATIVE wanted: With commercial refrigeration experience, to sell beverage coolers to distributors, dealers, and bottlers. Write today giving full details, age, experience and territory familiar with. Excellent opportunity for producers. UNDABAR COOLER CORPORATION, 2800 N. 9th St., St. Louis, Mo.

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AVAILABLE FOR immediate sale twenty (20) Model "N" Frigidaire units at $20.00 each, and ten (10) Model "C" Frigidaire units at $35.00 each. Prices F.O.B. Philadelphia, subject to prior sale. We advise immediate action on this rare bargain. ASSOCIATED REFRIGERATOR PLANT, INC., 3028 W. Hunting Park Avenue, Philadelphia, Pa.

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CONTROL REPAIR service. Your controls repaired by expert mechanics, with special precision equipment. Supervised by graduate engineers. We stress perfection and dependability before price. One year guarantee on domestic controls. Any bellows operated device repaired. HALECTRIC LABORATORY, 1793 Lakeview Road, Cleveland, Ohio.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

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803 West Madison Street Chicago, Illinois

MILLS COMPRESSORS for Commercial Use

Mills Novelty Company • 4100 Fullerton Avenue • Chicago, Illinois

You can make COILS with this new IMPERIAL tube bender!

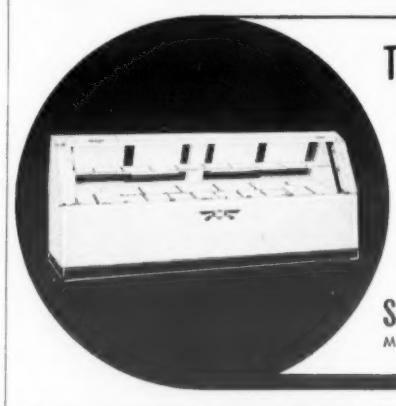
HERE'S something entirely new in tube benders an Imperial hand tube bender that will not only handle all types of bends but you can easily form round and obround coils with it. Furnished in four sizes for ⅜", ½", ⅝" and ¾" tubing.

Call your jobber and try out one of these new No. 406-F tube benders.

IMPERIAL BRASS MFG. CO., 565 S. Racine Ave., Chicago

IMPERIAL Tube Benders

VALVES • FITTINGS • TOOLS • CHARGING LINES • FLOATS • STRAINERS • DEHYDRATORS



THE PROFIT LINE FOR '39

Refrigerator and Compressor sales go together. SHERER offers a complete line of cases, coolers and boxes to be sold with your compressors.

Write for catalog and franchise details, mentioning territory desired.

SHERER-GILLETT CO., Marshall, Mich.
Manufacturers of Refrigerated Display and Storage Equipment

Chieftain Message No. 29

CONDENSING UNIT FACTS

1. Cast iron — 15,000 lbs. tensile strength.
2. Steel — 60,000 lbs. tensile strength.
3. Result — we use steel wherever possible.

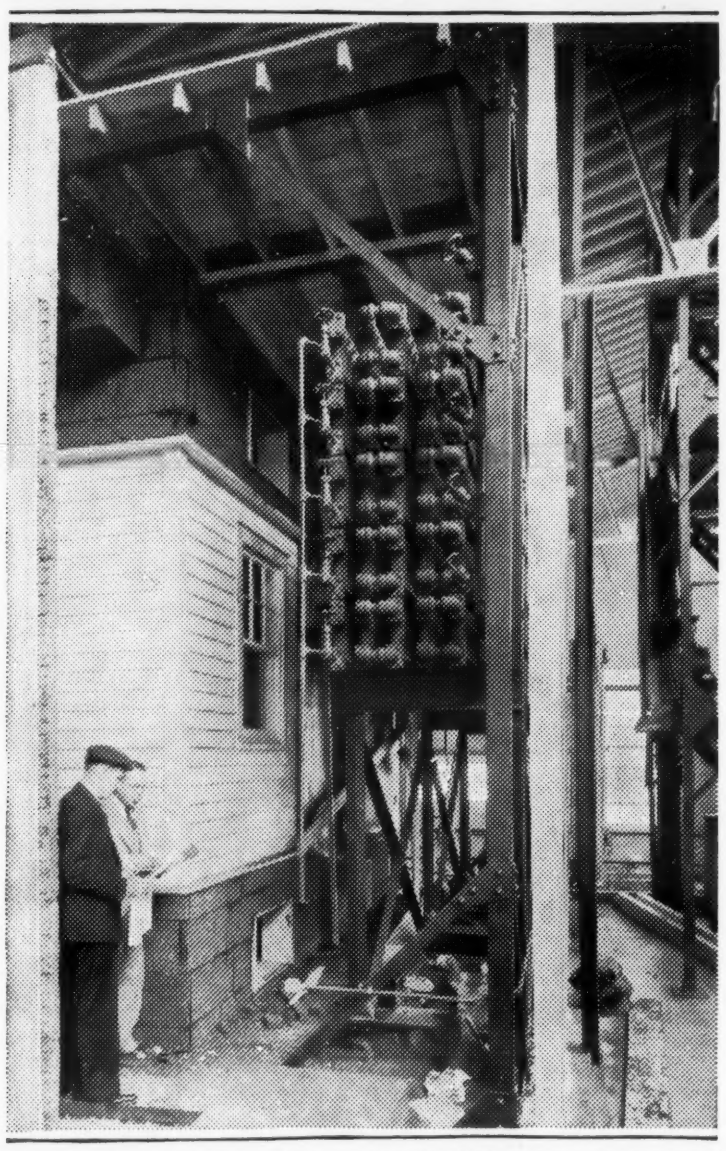
TECUMSEH PRODUCTS CO., TECUMSEH, MICH.

PITTSBERG REFRIGERANTS

GUARANTEED REFRIGERANTS
For All Applications
Triple-Refined SULPHUR DIOXIDE
New Process METHYL CHLORIDE
High-Test METHYLENE CHLORIDE
Sold By Leading Jobbers and Distributors Throughout the West

PITTSBERG CHEMICAL CO.
Central Tower, San Francisco, Calif.

'Making Summer' For Test House



A complete house portion within a huge insulated room, just completed at the University of Illinois, is shown here as the room was about to be closed. The pipes allow temperatures around the house portion to be varied from —5° to 110° F., and maintained at will for the study of year-around air conditioning. This equipment will be on display during the conference on air conditioning at the university March 8 and 9.

* * *

Conference Visitors To See New Jobs

URBANA, Ill.—Dealers, salesmen, and installation men who attend the second annual conference on air-conditioning at the University of Illinois March 8 and 9 will have the opportunity to inspect what is probably among the most complete equipment of any institution in the country for research and training in air conditioning.

Engineers at the university have just completed a portion of a house within a single insulated room. Pipes allow temperatures around the house portion to be varied from 5° below zero to 110° above, and maintained at will for the study of year-around conditoning.

Also on display during the conference will be the 42-foot long two-story set-up in the college of engineering laboratory. Designed by university engineers, the device provides a dozen different ways and combinations of ways for treating air, and has a capacity sufficient for an auditorium seating 100 persons.

All-year problems of air conditioning will be the subject matter of the two-day program, designed to be of particular value to the small dealer, contractor, installer, or owner of equipment.

Experts from five states are scheduled as speakers. Air-conditioning equipment and its characteristics will be discussed at the opening session, speakers including Prof. W. H. Severns and Prof. P. E. Mohn of the Illinois college of engineering, and S. H. Downs of Clarage Fan Co., Kalamazoo, Mich.

Introduction and regulation of air in conditioned rooms will be the afternoon topic, with Prof. D. W. Nelson of the Wisconsin University college of engineering and C. L. Rinquist of the Trane Co., La Crosse, Wis., as speakers.

Informal dinner meeting that evening will have as toastmaster Dr. A. C. Willard, president of the university and a nationally-known engineer in the field of ventilation and air conditioning. Speaking on "Physiological Responses of the Body to Its Environment" will be Dr. Charles Sheard, director of the division of physics and biophysical research in the Mayo foundation and clinic, Rochester, Minn.

Refrigeration, insulation, and building problems will occupy the second day's morning session, with R. E. Gould of Frigidaire Corp., Dayton, Ohio; Prof. Seichi Konzo of the college of engineering, and L. V. Teesdale of Madison, Wis., speaking.

Use of water cooling will be discussed at the afternoon session, with speakers including W. D. Gerber of the Illinois Water Survey, and S. I. Rottmayer, Chicago engineer.

Hawaiian Cooling Jobs Jump from 1 To 100 In Three Years

DETROIT—Three years ago the only air-conditioning installation in the Hawaiian islands was in the office of the Carrier distributor, W. A. Ramsay, in Honolulu.

At present, according to Stanley Peterson, the Carrier man in Hawaii, there are more than 100 installations in the islands. That's a feat comparable to the fabled one of selling ice to the eskimos, for the climate in Hawaii comes as close to year-around perfection as can be found on the face of the globe. Chief selling point has been that of health protection and relief for hay fever (see story on page 17).

Mr. Peterson was a visitor at the NEWS offices last Thursday. He was on his way back to Honolulu after spending several weeks at the Carrier factory in Syracuse. A California native, he went to Hawaii in 1935 for Carrier, and likes it so well he has decided to make Honolulu his permanent home.

One of the amusing features of life in Hawaii during the last couple of years, according to Mr. Peterson, has been the attempt of the C.I.O. to organize unions over there. It seems they have been having an awful time trying to impress the workers with the fact that they have grievances.

In addition to what are probably the highest unskilled labor wages in the world, workers on the Hawaiian sugar and pineapple plantations are given free homes, medical care and hospitalization, recreational facilities, and otherwise well-treated.

The C.I.O. boys finally did work up an unsuccessful strike among the sailors on the small boats which ply between the islands. But otherwise they've had meagre pickings.

Texas University Will Be Host At Cooling Meetings In April

(Concluded from Page 1, Column 5)

B. Groseclose, Houston engineer; and "Installation and Servicing of Air-Conditioning Equipment of Less than 50 Tons," by A. F. Avera, Carrier Corp., Waco.

O. G. Floyd, Beaumont; M. L. Diver, San Antonio, and Hal Gibson, Dallas, will lead discussions of the papers presented at this session.

As announced previously, the Food Preservation Conference, sponsored by the university in cooperation with the A.S.R.E., the A. & M. Engineering College of Texas, and Southwestern Ice Manufacturers' Association, will follow the pattern of the two conferences held last year at Penn State and the University of Tennessee.

Three sessions are scheduled for April 13, with papers to be presented at the morning meeting including "Bacteria and Enzymes," by Prof. J. Q. Sealey, Texas Technological College; "Refrigeration and the Packing Industry," by Henry G. Tefft, American Institute of Meat Packers, Chicago; "Practical Aspects of Food Technology," by Roy W. Snyder, Texas A. & M.

Afternoon session will hear discussions of "A Survey of Locker Plant Practice," by George Treat, editor, Quick Frozen Foods, New York City; "Operation of the Locker Plant," by Ernest F. Little, Oklahoma City; and "Economics of Plant Operation," by P. T. Montfort, Texas A. & M.

Evening session will be devoted to studies of the problems of ice freezing and melting.

Opening meeting April 14 will hear papers on "Freezing Media for Immersion Method of Freezing," by Dr. J. G. Woodruff, Georgia Experiment Station; "Preparation of Frozen and Refrigerated Foods," by Jennie Wilmot, home economist of the University of Texas; and "Quality Control in Food Freezing," by a representative of General Foods Corp.

Fifth and last technical session, that afternoon, will consider refrigerated transport. Speakers and topics include "Modern Refrigerator Car Design," by J. L. Townshend, Canadian National Railways, Montreal; "Use of Ice for Low Temperature Trucks," by a representative of Drumgold & Glenn; "Review of Transportation Methods," by Dean W. R. Woolrich, University of Texas; and "Portable Precooling Systems," by Ralph Killingstad, Shippers Precooling Service, Brownsville, Texas.

Airtemp Distributor For N. Y. Named

(Concluded from Page 1, Column 4)

ing major eastern markets. Harry Futoran has been associated with Mr. Marr since 1934.

Decision to market Airtemp's residential cooling and heating lines through a separate distributor in the New York area was influenced by plans to expand the New York Airtemp branch operation for greater concentration on commercial unitary and central-station applications, states B. S. Williams, sales manager.

Regional Meetings To Introduce York Line

(Concluded from Page 1, Column 1)

regional commercial supervisors, assisted by a touring group from headquarters in York, headed by J. L. Rosenmiller, sales promotion manager, and C. A. Pearson, manager of commercial sales.

W. S. Shipley, president of the York Ice Machinery Corp., and S. E. Lauer, vice president in charge of sales, will attend the meetings in New Orleans, Chicago, and Atlantic City.

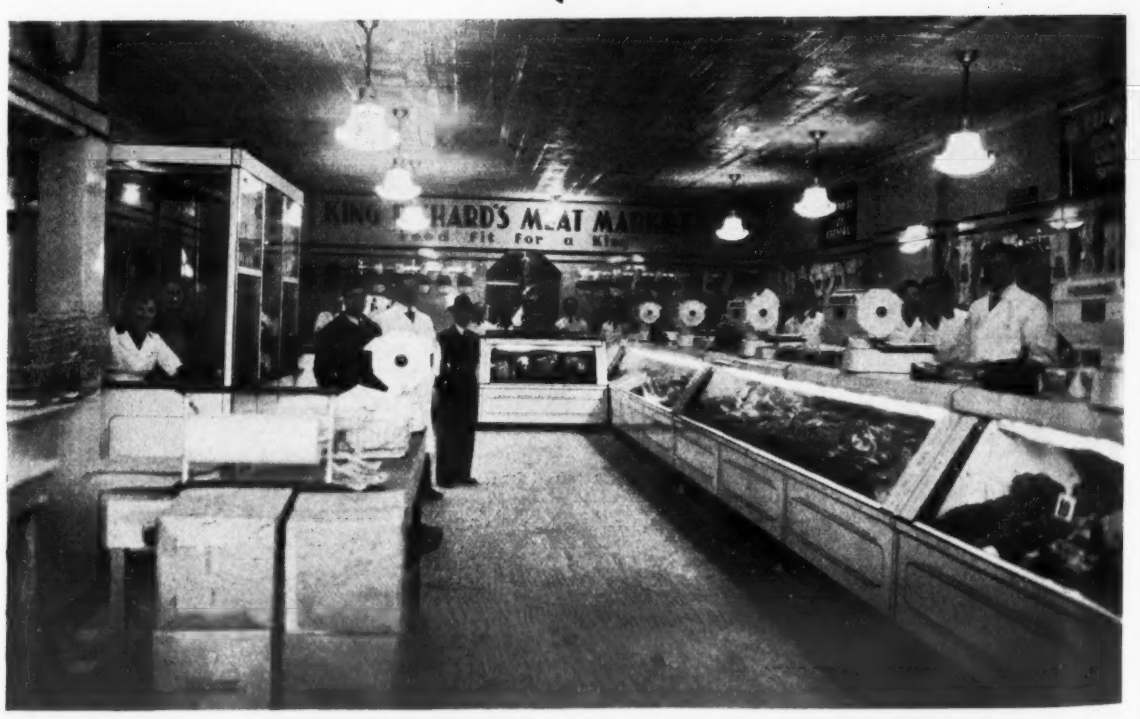
Chief items of equipment to be exhibited at the meetings will be a new line of Yorkaire "packaged" conditioners, residential heating and year-around air-conditioning equipment, and space chillers.

Turpin Heads Dealers Institute In Capital

WASHINGTON, D. C.—M. C. Turpin, local manager of Westinghouse Electric & Mfg. Co., has been installed as president of the Electric Institute of Washington for 1939, succeeding J. A. Doyle, manager of Columbia Wholesalers, Inc., who has been made a member of the institute's board of directors. F. C. Schneider has been installed as secretary for the current year.

Installation ceremonies took place at the institute's fifth annual dinner meeting held recently at the Raleigh hotel. More than 250 institute members and guests were present. A reception preceded the dinner meeting.

Meat Protection and Display . . . with A-P VALVES



● One of *Sixteen* King Richard's Meat Markets — ALL using

KELVINATOR EQUIPMENT AND A-P VALVES

When Sixteen out of Eighteen Modern Markets in one famous Chain standardize on Kelvinator Equipment and A-P Valves, it is distinct tribute to that equipment, to the Valves and to the Installing Engineer.

In King Richard's Market, above, six No. 210 A-P Thermostatic Expansion Valves have been operating without adjustment or change for over 18 months. Typical A-P Performance, this is one reason why Refrigeration Engineers are switching to A-P Valves and Solenoids — for assurance of greater Dependability and accurate control on any size installation.

● *Installation* . . .
King Richard's Meat Market
360 Johnson Ave.
Brooklyn, N. Y.

● *Refrigeration Equipment* . . .
Kelvinator Corporation
5 H.P. KELVINATOR Compressor
Special Air Cooled

● *Installed and maintained by* . . .
Bedford Refrigeration Service Corp.
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● *Valves* . . A-P
Six No. 210 A-P Expansion Valves
Operating over 18 months without adjustment or change.

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Refrigeration Parts Jobbers, Who Recognize Quality, Stock A-P Controls

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